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M. LEON GUIGNARD.

Prof. Leon Guignard, recently elected an honorary member of the American Pharmaceutical Association, is a distinguished French pharmacist. At the age of sixty-seven years he is intensely active and retains his deep interest in pharmaceutical research.

In 1876, he gained an interneship as pharmacist in the Hospital of Paris, later taking charge of the laboratory. Mr. Guignard was elected professor of botany in the University of Lyons in 1883 and, four years thereafter, to a like chair in the Pharmacy School of Paris. Honors have come with his achievements, and, among the distinctions and degrees he has obtained, *Bulletin de la Societé d'Histoire de la Pharmacie* for July 1917 cites the silver and gold medals of the interneship, the superior diploma of pharmacy, the doctorate of natural sciences, the Bordin prize of the Institute, the Buignet prize of the Academy of Medicine, the presidency of the Botanical Society of France, and the vice-presidency of the Society of Biology, furthermore, the honorary presidency of the Society of History of Pharmacy and of the Association of Students in Pharmacy of France. He is president of the Academy of Sciences, member of the Academy of Medicine and of the National Academy of Agriculture of France, officer of the Legion of Honor, member of the Superior Board of Public Instruction, of the Board of the University of Paris, of the Commission of Hygiene and Prefecture of Police and of a great many other committees. He is also a member of the Royal Academy of Belgium, etc. Prof. Guignard has largely contributed to research by his investigations of diastases, glucosides and principles which furnish cyanhydric acid in various plants, and the constituents of the Cruciferous and other families. To him is also ascribed much knowledge relative to mucilage secretion that exists in the Laminaires and of that which yields the oleoresins of the Copaifera and of other Leguminous plants, and also valuable studies on the origin and structure of seeds of a large number of plant families. E. G. E.

EDITORIAL

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TEAM WORK NECESSARY BETWEEN DRUG TRADE AND REVENUE OFFICIALS.

THE year 1920 brings greater opportunity and more responsibility to the drug trade than ever before. National prohibition first of all gives the trade an opportunity to eliminate that part of it which has always been a burden. One drug store in a community operating as a speak-easy injures the standing of a hundred reputable pharmacists. The Federal prohibition act prohibits the beverage use of intoxicating liquors and sale of all alcoholic preparations that are fit for use as beverages. In addition, if an alcoholic preparation is not fit for use as a beverage, and it is sold under conditions where the pharmacist should know that the purchaser is securing it for beverage purposes, he is violating the law. In addition a prohibitive tax is placed upon the manufacture and sale of intoxicating liquors in violation of the Federal prohibition code. This act may appear burdensome to some, but it will be a God-send to the trade, instead of a burden, if the trade meets the new situation in the right spirit. The "so-called" drug store which is used as a booze-joint must go. The best of the trade will welcome its departure. The large part of the trade which has always obeyed the law will be the beneficiary. If the law is obeyed the drug trade will enjoy the confidence of the people to a far greater extent under the new rule than heretofore.

The action of the retail drug trade, in advising its members not to take out Federal liquor tax or liquor permit to handle alcoholic liquors, has given the public a new vision of the trade and of those who are trying to control its policy. Federal officers and State officers, I am sure, will deal fairly with the trade and endeavor to enforce the law so as not to work any hardship except where there is necessity for it. Team work between the best part of the drug trade and public officials will bring good results financially, and it will result in the drug trade enjoying the confidence of the people which it deserves.

WAYNE B. WHEELER.

THE SIGNIFICANCE OF PRESENT DRUG MARKET CONDITIONS.

WHEN the armistice was signed the drug stocks of this country were at a very low ebb, and it was thought advisable by the drug houses to further reduce this stock in anticipation of an early decline in the prevailing high prices. With a very few exceptions, contrary to expectations, the market continued to advance. Practically the entire world is still looking to the United States for

most of its supplies. Not only in volume but in sales the year 1919 will record the largest figures by 25 percent over any previous citation.

Many incongruities appear in the drug market. Camphor, menthol and oil of peppermint, from Japan, sold at less in the United States than at producing points. Though most of the citric acid is imported, the cost of it is lower here than in Italy. Dalmatia, in the Fiume territory, has put insect powder at $1.00 a pound nearly off the price lists. Impoverished Italy made licorice root disappear from the market, as also other of her exports.

Transportation and economic disturbances of the Orient have caused rises in the cost of gum acacia, gamboge and tragacanth, while fortunes have been made on shellac for prompt delivery. Unrest has advanced the price of cantharides, ergot, lycopodium and other Russian world supplies beyond precedented figures.

Saccharin is now largely produced in this country, and is to some extent replacing sugar in the manufacture of products wherein the question of food value does not enter. When the Government released a number of millions of gallons of castor oil its price was lowered, but it is now again advancing. Santonine at $100.00 per pound is ten times its normal price.

The regulations of the Government for the sale of ethyl alcohol are nearly prohibitory. The cost of alcohol by the barrel ranges about $7.00 per gallon. Denatured alcohol has advanced with the progress of the winter season, during which large quantities of it are used for automobiles. Methyl alcohol is about double the price of denatured alcohol and still the output hardly keeps pace with the demand.

Bituminous coal shortage has limited the production of many chemicals, thereby adding to the existing normal deficiencies; phenol is too low and an advance in price is anticipated. The exportation of benzoic, boric and oxalic acids and formaldehyde portends further scarcity and consequently higher prices.

Potash salts, including the crude, bicarbonate, bromide and chlorate, are reversing their travels and the demands from abroad have induced higher figures, while the cost of permanganate, like other disinfectants, is far above the pre-war price. Many chemicals are, at times, unobtainable; the American chemical manufacturers are utterly unable to keep up with the demands for some of them, and, as a result, manufacturers requiring them have had almost unsurmountable difficulties, heightened by a shortage of containers and advances in all supplies and labor costs.

No immediate relief in the drug market is looked for; the higher overhead charges and labor costs have added to the troubles involved in obtaining supplies. The significance of the drug market is that American drug culture should be promoted along progressive but rational lines; the manufacture of American

chemicals and pharmaceuticals should be further developed and encouraged and American markets largely extended. Work and production are essentials to the prosperity of a country regardless of how rich and bountiful its natural resources may be.

C. P. VAN SCHAACK.

HOW CAN THE JOURNAL BETTER SERVE YOU?

THE American Pharmaceutical Association exists to promote the science and art of pharmacy and the interests of the general public in relation thereto; and it does this in various ways—by stimulating research, by diffusing knowledge, by fostering education, by upholding the dignity and importance of pharmacy, by observing the standards for official drugs and by establishing standards for unofficial drugs, by aiding in the regulation of the use of habit-forming drugs and in the protection of the public health, by maintaining respect for ethical standards and by promoting coöperation between physicians and pharmacists—all to the end that the growth and development of pharmacy may be promoted in every proper way, for the good of mankind.

The JOURNAL of the Association is published only to promote the objects of the Association. As Dr. James Hartley Beal so well stated, editorially, in the first issue of the JOURNAL (January 1912), "The JOURNAL is not an object but an instrument. The American Pharmaceutical Association does not exist for the purpose of producing this publication, but the latter has been brought into existence to serve the necessities of the Association. The prime object of the JOURNAL is to furnish a more direct and speedy communication between the Association and its members than is possible through the columns of other pharmaceutical journals. The latter while they have been lavishly liberal in extending the use of their columns to the Association cannot, in the very nature of things, report its proceedings and the activities of its officers and committees with the fullness and detail necessary to the complete information of the members; while to withhold this information until the issue of the annual volume or Year Book, as has been done heretofore, is to withhold it until it possesses value for only one division of the Association, to wit, the Section on Historical Pharmacy. In fine, the JOURNAL will be satisfied to be, and remain, the official organ of the Association, and the first and last test that will be applied to any proposed policy or utterance will be its ability to serve the welfare of the Association and the cause for which it labors."

Eight years have flown by since the first number of the JOURNAL was issued, and it is but fair to say that the services of the JOURNAL have more than justified its establishment. During this period, the Association has made greater progress, as a real, constructive force in American Pharmacy, than ever before, and not the least important factor in such development has been the fact that the JOURNAL

has become the clearing-house of pharmaceutical opinion for every branch of pharmacy, not once a year, but every month in the year.

To-day the JOURNAL is the most important asset of the Association. It occupies a field that is peculiarly its own. It is the mouth-piece so to speak, of the members of the Association, reflecting *their* ideals, *their* aims, *thei* rwork—in short, *it is a coöperative enterprise, and it is just what the members choose to make it.*

In the publication of the JOURNAL, several basic facts must be considered; first, the JOURNAL must serve a number of diversified interests, the membership of the Association embracing, as it does, all those who are directly or indirectly engaged in the practice of pharmacy, whether as retailers, wholesalers, manufacturers, chemists, teachers, publishers or food and drug officials. Naturally, each of these classes is primarily interested in its own field of work and secondarily in the other fields. Hence, it is necessary to "balance" the reading matter of the JOURNAL so as to properly appeal to all the interests represented. Second, every article submitted for publication in the JOURNAL must be made as brief as possible, not only because the briefer it is, the better it is, as a rule, but also for economic reasons. In these days of ultra-high living, printing costs are mounting by leaps and bounds—every page of the JOURNAL costs dollars.

The JOURNAL is not perfect and never can be; it is a human institution. It can be improved. It can grow and develop. It can be made more helpful and stimulate the attention, interest and desire of the membership to the end that more and more constructive work for pharmacy may be done. But how?

Are there any new service-features that can be advantageously added to the JOURNAL? Are there any unnecessary features that can be dispensed with? Shall the proceedings of meetings be published in full detail, or shall they be further condensed? Shall discussions be published? Shall a larger number of personal notes be given, and if so, within what limitations? How can the JOURNAL be made of greater service and value to its advertisers? The heartiest thanks of the American Pharmaceutical Association are due to the advertisers of the JOURNAL for the splendid support they have given the JOURNAL, and while we believe that a *quid pro quo* has been given by the JOURNAL to its advertisers, yet we believe also that closer and more mutually advantageous relations can and should be established between the advertisers and the membership. How?

It has been suggested that the JOURNAL give, each month, a review of the pharmaceutical literature of the world, or else establish a monthly pharmaceutical abstract journal based on such literature. After careful consideration of the suggestion from all angles, it is felt that the best and most economical procedure would be to give in the JOURNAL, each month, an index pharmaceuticus or bibliography of pharmaceutical research, and also to continue the publication of the Year Book with its "annual, systematic review, or digest of pharmaceutical progress in orderly,

logical sequence, fully and completely." By this means, the membership will receive, not only the annual volume, but also, each month, a list of the titles of all original articles in pharmaceutical literature of the previous month and can promptly refer to same; to the practical worker the manner of publication of such data will be immaterial so long as he can be kept in close touch with the latest developments of pharmaceutical progress, while the avoidance of the duplication of printed matter by the Association first, monthly in the JOURNAL, and second, annually in the Year Book, will be the part of economic wisdom.

It will be of interest to state that Prof. H. V. Arny, Reporter on the Progress of Pharmacy, and Chairman of the Committee on Research, has most kindly consented to prepare for the JOURNAL, each month, an index pharmaceuticus or bibliography of pharmaceutical research, as announced elsewhere in this issue.

Many other service-features will doubtless suggest themselves to the readers of the JOURNAL, and on behalf of the Committee on Publication, the writer would state that the Committee will gladly welcome any and all suggestions offered for the betterment of the JOURNAL, and will give them due and careful consideration; but it should be stated that the Committee must be governed somewhat by the question of the increased cost that the adoption of a suggestion will entail and whether or not the increased cost can be offset by condensing or eliminating less important features. In other words, the resources of the Association are limited and must be conserved.

How can the JOURNAL better serve you?

J. W. ENGLAND.

"WOODINE" SUGGESTED AS NAME FOR METHYL ALCOHOL.

Commissioner of Internal Revenue Daniel C. Roper is considering a suggestion from manufacturing chemists that all manufacturers and dealers in wood alcohol be required to place on the containers thereof a distinctive label, and to destroy all labels and literature containing the word "alcohol." "Woodine, a poisonous compound," is suggested as a name for methyl alcohol.

ALCOHOL ON HAND JANUARY 17 TO BE REPORTED.

Persons legally permitted to have in their possession intoxicating liquors on and after January 17 are required to report within ten days from that date to the collector of internal revenue for the district in which they live, or have their principal place of business, the kind of such liquor, it is announced by the Internal Revenue Bureau. Liquors requiring to be reported and not included in the inventory are subject to seizure. Liquors possessed in a private dwelling do not have to be reported; neither are distilled spirits in distillery bonded warehouses, general bonded warehouses, and special bonded warehouses, wines held in bonded wineries and in bonded storerooms, and liquors in customs bonded warehouses. New alcohol regulations will be issued after January 17.

THE "SHAKING-OUT" METHOD FOR THE QUANTITATIVE ESTIMATION OF ALKALOIDS. II.*

Effect of Clarification and "Salting-out."

BY GEORGE D. BEAL AND THOMAS S. HAMILTON.

The standard method for the estimation of alkaloids in drugs and preparations thereof is based upon an extraction of the alkaloid usually as a salt, by an appropriate solvent, replacing any other solvent used by water, freeing the alkaloid from its salt combination with alkali and extracting the freed alkaloid with an immiscible solvent. The completeness of extraction and purification of the alkaloid depends upon the usually greater solubility of the alkaloidal salts in water than in the so-called immiscible solvents, and the greater solvent power of the immiscible solvents for the free bases. The rate of extraction of alkaloids by means of the immiscible solvents depends upon the coefficient of distribution for the alkaloid between the two immiscible liquids, a constant to which in this case Beal and Lewis[1] have given the name "extraction factor."

When an alkaloid is extracted directly, free or as a salt, from a drug or preparation thereof, it will be accompanied by many other extractives, among these being proteins, fats, volatile oils, organic acids, gums, resins, colors and carbohydrates. Of these, the carbohydrates will not interfere in subsequent extractions. It is customary to remove the other compounds soluble in the immiscible solvents, *e. g.*, fats, volatile oils, organic acids, and acid resins, by shaking an acid aqueous solution of the extract with the immiscible solvent, which will extract these non-basic compounds but in which the alkaloidal salts theoretically are insoluble. Beal and Lewis[2] have pointed out several sources of error at this point. Chief among these are, first, the solubility of the alkaloid salt in the always slightly hydrous solvent, and, second, the possibility of hydrolysis of the salt in aqueous solution with accompanying extraction of the free alkaloid by the immiscible solvent.

The effect of the gums, neutral resins, proteins and coloring matters in the extract is to cause, unless great care is taken, the formation of emulsions with the immiscible solvents which are difficultly broken up. In addition, the extraction of the coloring matters and neutral resins by the immiscible solvent leads to the final formation of an impure alkaloidal residue. The stability of many of the emulsions formed suggests the desirability of preventing their formation rather than the perfection of methods for their later removal.

The object of this investigation was to determine what advantages, if any, lay in the clarification of the aqueous alkaloidal solution before extraction with an immiscible solvent. Two secondary propositions were also considered, the effect upon the rate of extraction of the alkaloid by the "salting-out" effect of sodium chloride, and the amount of alkaloid removed by one extraction with the immiscible solvent.

Lead acetate and subacetate have been largely used in organic analysis as clarifying agents, particularly for the removal of coloring matters and organic

*Read before Scientific Section, A. Ph. A., New York meeting, 1919.

[1] This Journal, 5, 812–837, 1916.

[2] *Loc. cit.*

acids from raw sugar solutions and for the removal of tannins from vegetable extracts generally. Their general use as clarifying agents in general alkaloidal analysis has been suggested by Henry[3]. Henry[4] recommends lead acetate for detannating coffee extracts in the determination of caffeine and in the Stahlschmidt-Allen method for determining caffeine[5] both lead acetate and subacetate are used for the same purpose. Henry[6] suggests its use in the estimation of morphine and Barger uses lead acetate in determining the alkaloids of gelsemium.[7] Henry[8] states that lead acetate may be used in the extraction of caffeine, emetine, lycopodine, pilijanine, cytisine and several other alkaloids. In addition to these, Lyons has used it[9] in extracting digitalein and pilocarpine, Dragendorff[10] in determining coniine, and Prescott[11] in extracting morphine and in a few other instances.

The present authors took up the study with a view to determining, first, the quantitative effect of lead acetate on the extraction of certain selected alkaloids from solutions of their pure salts, and, second, its efficiency in determining certain of these same alkaloids in their parent drugs.

EXPERIMENTAL.

The alkaloids used were caffeine, quinine, strychnine and morphine.

Caffeine.—Pure anhydrous caffeine was dissolved in 4 percent acetic acid and a 10 percent solution of lead acetate added, without a perceptible reaction. The lead was removed from the solution by hydrogen sulphide and this solution, after removal of the hydrogen sulphide, was made alkaline with ammonium hydroxide and extracted with five 10 Cc. portions of chloroform. After the fifth extraction, the solution gave no positive reaction for caffeine by the murexide test. The caffeine in the chloroform extract was estimated by evaporation, dehydration and weighing.

Table I shows in Column 9 the weight of caffeine taken, in Column ten, the weight obtained on complete extraction, and in Column 11, the percentage recovery of caffeine. Other details of the treatment are also given in the tables. Table II shows the percentage of caffeine extracted by a single 10 Cc. portion of chloroform. In determinations 5, 6, 7, 8, 17, 18, 19 and 20, the solutions were half saturated with sodium chloride before extraction with chloroform. Two of the results with this treatment, 6 and 8, are, respectively, 10 and 5 percent over the theoretical amount of caffeine present. In neither instance did the alkaloid as weighed give a positive test for chlorides. In the four instances in Table II, where salting-out was attempted, the percentage of alkaloid removed by a single extraction is 10 percent greater than where salting-out is not practiced.

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[3] Allen, "Comm. Org. Anal.," 4th Ed., VI, 174, 1912.
[4] *Ibid.*, p. 606.
[5] *Ibid.*, p. 607.
[6] *Ibid.*, p. 435.
[7] *Ibid.*, 7, p. 31.
[8] "Plant Alkaloids," p. 427.
[9] "Manual of Proximate Pharmaceutical Assaying," p. 40, 1886.
[10] "Plant Analysis," 1884.
[11] "Organic Analysis," p. 370, 1892.

TABLE I.

1. No.	2. Cc. of 4% acetic acid for solution.	3. Cc. of PbAc added.	4. Ppt.	5. Alkaloid freed with 10% NH_4OH. Cc.	6. Extracted with $CHCl_3$. Cc.	7. Gramme of pure caffeine taken.	8. Gramme of caffeine recovered.	9. % recovered.
1.....	25	2	No	0.2	5–50	0.1000	0.1033	103.3
2.....	25	1	No	0.4	5–50	0.1000	0.1015	101.5
3.....	25	2	No	1.0	5–50	0.1000	0.1009	100.9
4.....	25	3	No	0.3	5–50	0.1000	0.1012	101.2
5.....	25	2	No	0.3	5–50[1]	0.1000	0.1023	102.3
6.....	25	2	No	0.3	5–50[1]	0.1000	0.1101	110.1
7.....	25	2	No	0.3	5–50[1]	0.1000	0.1037	103.7
8.....	25	2	No	0.3	5–50[1]	0.1000	0.1051	105.1
9.....	25	2	No	0.3	5–50	0.1000	0.0993	99.3
10.....	25	2	No	0.3	5–50	0.1000	0.0995	99.5
11.....	25	2	No	0.3	5–50	0.1000	0.1011	101.1
12.....	25	2	No	0.3	5–50	0.1000	0.1006	100.6

TABLE II.

13.....	25	0	No	0.3	1–10	0.1000	0.0785	78.5
14.....	25	0	No	0.3	1–10	0.1000	0.0777	77.7
15.....	25	0	No	0.3	1–10	0.1000	0.0779	77.9
16.....	25	0	No	0.3	1–10	0.1000	0.0791	79.1
17.....	25	0	No	0.3	1–10[1]	0.1000	0.0892	89.2
18.....	25	0	No	0.3	1–10[1]	0.1000	0.0877	87.7
19.....	25	0	No	0.3	1–10[1]	0.1000	0.0883	88.3
20.....	25	0	No	0.3	1–10[1]	0.1000	0.0886	88.6

[1] Aqueous solution half saturated with NaCl.

Quinine.—In determining the effect of the addition of lead acetate on the extraction of quinine the same procedure is followed as with caffeine, except that the use of quinine sulphate necessitated a filtration to remove lead sulphate. The point of complete extraction of the alkaloid was determined by tests with Mayer's reagent. The results obtained are shown in Tables III and IV and are comparable with those obtained with caffeine. Addition of lead acetate causes no loss of alkaloid, and the effect of salting out is to increase the percentage recovery. No test for chlorides was obtained from the residue where salting-out was practiced.

TABLE III.

1. No.	2. Cc. of 4% acetic acid for solution.	3. Cc. of PbAc added	4. Ppt.	5. Alkaloid freed with 10% NH_4OH. Cc.	6. Extracted with $CHCl_3$. Cc.	7. Gramme of sulphate taken	8. Gramme taken based on free alkaloid.	9. Gramme recovered, estim. as anhydrous quinine.	10. % recovered.
1....	25	2	Yes	5.0	5–50	0.1000	0.0868	0.0890	102.2
2....	25	2	Yes	3.0	5–50	0.1000	0.0868	0.0893	102.8
3....	25	1	Yes	1.0	4–40	0.1000	0.0868	0.0880	101.2
4....	25	4	Yes	0.1	4–40[1]	0.1000	0.0868	0.0872	100.4
5....	25	3	Yes	0.3	4–40[1]	0.1058	0.0918	0.0945	103.4
6....	25	3	Yes	0.3	4–40[1]	0.1105	0.0959	0.1027	107.1
7....	25	3	Yes	0.3	4–40[1]	0.0991	0.0860	0.0840	97.7
8....	25	3	Yes	0.3	4–40	0.1086	0.0943	0.1057	111.2
9....	25	3	Yes	0.3	4–40	0.1213	0.1054	0.1062	100.8
10....	25	3	Yes	0.3	4–40	0.1108	0.0962	0.0977	101.3
11....	25	3	Yes	0.3	4–40	0.1007	0.0873	0.0864	98.9
12....	25	3	Yes	0.3	4–40	0.0988	0.0856	0.0878	102.7

[1] Aqueous solution half saturated with NaCl.

TABLE IV.

1. No.	2. Cc. of 4% acetic acid for solution.	3. Cc. of PbAc added.	4. Ppt.	5. Alkaloid freed with 10% NH_4OH. Cc.	6. Extracted with $CHCl_3$. Cc.	7. Gramme of sulphate taken.	8. Gramme taken based on free alkaloid.	9. Gramme recovered estim. as anhydrous quinine.	10. % recovered.
13....	25	0	No	0.3	1–10	0.1043	0.0908	0.0746	82.3
14....	25	0	No	0.3	1–10	0.1176	0.1020	0.0833	81.6
15....	25	0	No	0.3	1–10	0.1080	0.0938	0.0781	83.2
16....	25	0	No	0.3	1–10	0.1121	0.0974	0.0804	82.6
17....	25	0	No	0.3	1–10[1]	0.1236	0.1072	0.0928	86.7
18....	25	0	No	0.3	1–10[1]	0.1071	0.0930	0.0802	86.3
19....	25	0	No	0.3	1–10[1]	0.1155	0.1002	0.0854	85.1
20....	25	0	No	0.3	1–10[1]	0.1097	0.0952	0.0830	87.2

[1] Aqueous solution half saturated with NaCl.

Strychnine.—The series of experiments were repeated, using pure anhydrous strychnine, with results of the same general order as before. In addition, an attempt was made to simplify the analysis of nux vomica by the use of lead acetate as a clarifying agent on the aqueous extract of the drug. The procedure used follows:

Fifty grammes of powdered nux vomica were macerated with 500 Cc. of approximately half-normal sulphuric acid. This gave a thick, slimy extract which was difficult to filter. It was filtered successively through an increasing number of layers of cheese-cloth and finally through filter paper. The residue was again macerated with 500 Cc. of acid and filtered in the same manner as previously. The filtrates were combined and heated to 75° for thirty minutes to coagulate colloids, again filtered and two portions of exactly 300 Cc. each taken. To one portion was added 0.6000 Gm. of pure strychnine and both solutions clarified and deleaded in the usual manner. Extraction of the alkaloid was then carried out, with and without "salting-out," and the results obtained are given in Table VII. After clarifying the drug extract with lead acetate only a slight emulsion was obtained between the two liquids, while the unclarified extract yielded an emulsion which could not be handled in any way.

TABLE V.

1. No.	2. Cc. of 4% acetic acid for solution.	3. Cc. of $PbAc_2$ added.	4. Ppt.	5. Alkaloid freed with 2% NaOH. Cc.	6. Compound used.	7. Extracted with $CHCl_3$. Cc.	8. Gramme taken.	9. Gramme recovered as anhydrous strychnine.	10. % recovered.
7....	25	2	No	2	Pure	5–50	0.1000	0.1012	101.2
8....	25	2	No	2	Pure	5–50	0.1000	0.1107	110.7
9....	25	2	No	2	Pure	5–50	0.1000	0.0998	99.8
10....	25	1	No	1	Pure	5–50[1]	0.1115	0.1148	102.0
11....	25	1	No	1	Pure	5–50[1]	0.1235	0.1532	124.0
12....	25	1	No	1	Pure	5–50[1]	0.1157	0.1194	103.0
13....	25	1	No	1	Pure	5–50[1]	0.1271	0.1500	118.0

TABLE VI.

14....	25	0	No	1	Pure	1–10	0.1386	0.1055	76.1
15....	25	0	No	1	Pure	1–10	0.1074	0.0822	76.5
16....	25	0	No	1	Pure	1–10	0.1431	0.1085	75.8
17....	25	0	No	1	Pure	1–10[1]	0.1116	0.0973	87.1
18....	25	0	No	1	Pure	1–10[1]	0.1231	0.1038	84.3
19....	25	0	No	1	Pure	1–10[1]	0.1371	0.1161	84.7

[1] Aqueous solution half saturated with NaCl.

TABLE VII.

1. No.	2. Cc. of 4% acetic acid for solution.	3. Cc. of $PbAc_2$ added.	4. Ppt.	5. Alkaloid freed with 2% NaOH Cc.	6. Compound used.	7. Exracted with $CHCl_3$. Cc.	8. Gramme taken	9. Gramme recovered as anhydrous strychnine.	10. Average.
20....	50	15	Yes	1	Extract	5–50	.....	0.0455	.....
21....	50	15	Yes	1	Extract	5–50	.....	0.0537	0.0492
22....	50	15	Yes	1	Extract	5–50[1]	.....	0.0473	.....
23....	50	15	Yes	1	Extract	5–50[1]	0.1000	0.1491	.....
24....	50	15	Yes	1	Extract	5–50	0.1000	0.1486	.....
25....	50	15	Yes	1	plus pure	5–50	0.1000	0.1497	0.1491
26....	50	15	Yes	1	alkaloid	5–50[1]	0.1000	0.1492	.....

[1] Aqueous solution half saturated with NaCl.

Morphine.—Supposedly pure morphine and morphine sulphate U. S. P. VIII were used with less satisfactory results than with the other alkaloids. Morphine sulphate U. S. P. VIII is supposed to contain five molecules of water of crystallization, but determination of nitrogen by the Kjeldahl method showed the salt to be anhydrous. A recalculation based on this data gave much better results.

In order to determine more accurately, if possible, the amount of alkaloid extracted, the residue on evaporation of the solvent, after weighing, was dissolved in a measured amount of standard acid, and the excess of acid determined by titration with standard alkali.

On solution of the alkaloidal residue in acid a small amount of resinous matter was left, which was determined quantitatively whenever possible. Evidence favoring the view that this represents oxidation products of the morphine is strengthened by the fact that the quantity of this residue was greatly diminished by evaporation of the solvent in an atmosphere of carbon dioxide.

The solvent most suitable for the extraction of morphine was found to be amyl alcohol. Puckner[12] suggested the use of a mixture of chloroform 80 percent and alcohol 20 percent, claiming that on evaporation and drying at a temperature not over 60° the alkaloid retained one molecule of water. Taylor,[13] when using amyl alcohol as solvent, obtained anhydrous morphine at 100° C. Prescott[14] found the alkaloid crystallized with one molecule of water to be stable at 100°, becoming anhydrous at 120°. The authors, using amyl alcohol as solvent, have found that if the solvent was evaporated at a temperature not exceeding 40° and the dish then heated on the steam bath at 100° for two hours, there was no further loss in weight on heating at 120°. The alkaloid thus obtained was found to be anhydrous.

The best procedure for extraction involved the use of six portions of hot amyl alcohol, 30, 20, 10, 10, 5 and 5 Cc., the first portion being added just before making the solution very slightly ammoniacal. If the solvent was evaporated in air at 100° the resinous matter formed averaged 7.5 percent. When evaporated at 100° in CO_2, practically no resin was formed. Evaporating in air at 40° left about 3 percent of resin. Aside from these discrepancies, the results both from the use of lead acetate as a clarifier and sodium chloride for "salting-out" are satisfactory and of an order similar to those obtained with the other alkaloids used. The results obtained are given in Table VIII.

[12] *J. Am. Chem. Soc.* 23, p. 470.
[13] *Pharm. Jour.*, [3] 18, pp. 161, 273.
[14] "Organic Analysis," p. 363.

TABLE VIII.

1. No.	2. Cc. of 4% acetic acid for solution.	3. Cc. of PbAc added.	4. Ppt.	5. Alkaloid freed with 10% NH_4OH. Cc.	6. Compound used.	7. Extracted with.	8. Gramme taken.
3	25	2	No	1.0	Pure		
4	25	2	No	1.0	Pure		
9	25	4	Yes	0.1	Sulphate		
10	25	4	Yes	0.1	Sulphate	6–70 Cc. Hot Amyl Al[1]	0.1000
11	25	3	Yes	0.1	Sulphate	6–70 Cc. Hot Amyl Al[1]	0.1000
12	25	3	Yes	0.1	Sulphate	6–80 Cc. Cold Amyl Al	0.0980
13	25	4	Yes	0.1	Sulphate	6–80 Cc. Cold Amyl Al	0.1093
14	25	0	No	0.1	Sulphate	6–70 Cc. 80% $CHCl_3$: 20% Al[3]	0.1084
23	25	4	Yes	0.1	Sulphate	6–70 Cc. 80% $CHCl_3$: 20% Al[3]	0.1675
24	25	4	Yes	0.1	Sulphate	5–70 Cc. Cold Amyl Al	0.1177
26	25	4	Yes	0.1	Sulphate	5–70 Cc. Cold Amyl Al	0.1357
27	25	4	Yes	0.3	Sulphate	5–70 Cc. Hot Amyl Al[1]	0.1135
28	25	4	Yes	0.3	Sulphate	5–70 Cc. Hot Amyl Al[1]	0.0936
29	25	4	Yes	0.3	Sulphate	5–70 Cc. Hot Amyl Al[1]	0.1148
30	25	4	Yes	0.3	Sulphate	6–70 Cc. Cold Amyl Al	0.1253
32	25	4	Yes	0.3	Sulphate	6–70 Cc. Cold Amyl Al	0.1190
33	25	4	Yes	0.3	Sulphate	6–70 Cc. Cold Amyl Al	0.1107
34	25	4	Yes	0.3	Sulphate	6–70 Cc. Hot Amyl Al	0.1370
35	25	4	Yes	0.3	Sulphate	6–70 Cc. Hot Amyl Al	0.0773
36	25	4	Yes	0.3	Sulphate	6–70 Cc. Hot Amyl Al	0.1119
37	25	0	No	0.3	Sulphate	6–70 Cc. Hot Amyl Al[1]	0.1126
38	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.1905
39	25	4	Yes	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.1962
40	25	4	Yes	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.2242
41	25	4	Yes	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.2091
42	25	4	Yes	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.2011
43	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.2146
44	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.2204
45	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1]	0.2009
46	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1 2]	0.1000
47	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1 2]	0.1295
48	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1 2]	0.1106
49	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1 2]	0.1214
50	25	0	No	0.3	Sulphate	6–80 Cc. Hot Amyl Al[1 2]	0.1086
						6–80 Cc. Hot Amyl Al[1 2]	0.1132
						6–80 Cc. Hot Amyl Al[1 2]	0.0997
						6–80 Cc. Hot Amyl Al[1 2]	0.1206

[1] Solvent added before freeing alkaloid.
[2] Solvent evaporated in current of CO_2.
[3] Solution half saturated with NaCl.

9. No.	Gramme taken estimated as anhydrous morphine.	10. Gramme recovered gravimetrically estimated as anhydrous morphine.	11. % recovered gravimetrically.	12. Gramme recovered volumetrically.	13. % recovered volumetrically.	14. Gramme resinous substance.	15. % resinous substance.	16. Total % recovered 14 and 15 or 12.
3	0.1000	0.0943	94.3	....	...	....	....	94.3
4	0.1000	0.0938	93.8	....	...	....	....	93.8
9	0.0837	0.0742	88.5	....	...	....	....	88.5
10	0.0935	0.0835	89.4	....	...	....	....	89.4
11	0.0926	0.0868	93.8	....	...	....	....	93.8

TABLE VIII.—(*Continued*).

9. No.	Gramme taken estimated as anhydrous morphine.	10. Gramme recovered gravimetrically estimated as anhydrous morphine.	11. % recovered gravimetrically.	12. Gramme recovered volumetrically.	13. % recovered volumetrically.	14. Gramme resinous substance.	15. % resinous substance.	16. Total % recovered 14 and 15 or 12.
12	0.1430	0.0420	29.3	....	...	....	....	29.3
13	0.1003	0.0894	89.0	....	...	....	....	89.0
14	0.1158	0.1021	88.2	....	...	....	....	88.2
23	0.0968	0.0890	92.0	0.0886	91.5	....	....	91.5
24	0.0799	0.0757	94.9	0.0764	95.5	....	....	95.5
26	0.0980	0.0927	94.6	0.0898	91.7	....	....	91.7
27	0.1070	0.1105	103.2	0.0870	81.3	....	....	81.3
28	0.0938	0.0774	82.5	0.0846	90.2	....	....	90.2
29	0.1013	0.0690	68.2	0.0743	73.3	....	....	73.3
30	0.0944	0.0809	85.7	0.0798	84.6	....	....	84.6
32	0.0658	....	...	0.0586	89.0	0.0049	7.0	96.0
33	0.0995	....	...	0.0801	88.8	0.0091	8.95	97.9
34	0.0962	....	...	0.0659	68.6	0.0060	5.94	74.5
35	0.1621	0.1591	98.4	0.1478	91.0	0.0123	7.13	98.2
36	0.1672	0.1628	97.6	0.1518	90.8	0.0112	6.31	97.1
37	0.1748	0.1730	99.0	0.1570	89.96	0.0177	8.74	98.7
38	0.1721	0.1702	98.8	0.1561	90.7	0.0148	7.8	98.5
39	0.1715	0.1689	98.4	0.1577	91.9	0.0117	6.4	98.3
40	0.1718	0.1690	98.3	0.1542	89.93	0.0150	8.21	98.14
41	0.1724	0.1687	97.7	0.1550	89.58	0.0144	7.87	97.45
42	0.1708	0.1661	97.4	0.1552	91.15	0.0109	6.02	97.17
43	0.0853	0.0842	98.61	0.0841	98.50	0.0003	0.3	98.80
44	0.1105	0.1097	99.12	0.1096	99.10	Trace	....	99.10
45	0.0944	0.0940	99.50	0.0938	99.46	0.0005	0.5	99.51
46	0.1037	0.1025	98.85	0.1023	98.83	Trace	....	98.83
47	0.0926	0.0902	97.46	0.0876	94.56	0.0028	3.06	97.5
48	0.0967	0.0955	98.6	0.0917	94.9	0.0030	3.1	98.0
49	0.0852	0.0843	98.84	0.0814	95.7	0.0029	3.4	99.1
50	0.1029	0.1021	99.1	0.0984	95.5	0.0033	3.2	98.7

SUMMARY.

It is shown that lead acetate when used as a clarifier for alkaloidal extracts has no harmful effect upon the extraction of the alkaloid by immiscible solvents.

The addition of sodium chloride to such extracts after clarification increases the quantity of alkaloid removed at a single extraction.

The assay of powdered nux vomica was greatly facilitated by the use of lead acetate as a clarifying agent upon a dilute acid extract of the drug, which was then immediately made alkaline and shaken out with the solvent.

The conditions for obtaining a residue of anhydrous morphine have been determined.

DIVISION OF QUANTITATIVE ANALYSIS,
UNIVERSITY OF ILLINOIS,
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PARTIAL ANALYSES OF 330 AMERICAN CRUDE DRUGS.

(*Concluded from p. 1029, December 1919.*)

BY JOSEPH F. CLEVENGER AND CLARE OLIN EWING.

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extract. Total	Ether extract. Volatile.	Color.	Odor.	Remarks
2352	*Hedeoma pulegioides* (L.) *Pers.*	Pennyroyal	Leaves	Medium grayish green	26.5	18.9	4.42	0.56	Very dark green	Characteristic, strong	Very dusty
2649	*Hedeoma pulegioides* (L.) *Pers.*	Pennyroyal	Herb (35% stems)	Medium grayish green	7.3	1.2	5.37	0.38	Medium brownish green	Characteristic, strong	Clean
1973	*Helianthus annuus* L.	Sunflower	Seed	Medium light gray	3.4	0.1	21.40	0.00	Greenish yellow, almost colorless	Fatty, acid, slightly rancid	Clean. Ether extract gained 0.68% when heated
2374	*Hepatica acutiloba* D. C.	Liverwort	Leaves	Grayish green	12.6	3.2	3.54	0.30	Dark brownish green	Slightly aromatic, somewhat fetid	Clean
2303	*Hepatica hepatica* (L.) *Karst.*	Liverwort	Leaves	Grayish green	10.7	0.9	3.77	0.20	Dark brownish green	Slightly aromatic, somewhat fetid	Clean
2523	*Hepatica hepatica* (L.) *Karst.*	Liverwort	Leaves	Grayish green	10.2	0.7	4.54	0.28	Dark brownish green	Slightly aromatic, somewhat fetid	Clean
2549	*Hicoria cordiformis* (Wang) *Britton*	Hickory	Tree bark	Medium brown	10.6	0.3	4.26	0.24	Light yellowish green	Sweetish, suggestive of horehound	Clean
2434	*Humulus lupulus* L.	Hops	Strobiles	Medium brown	11.1	1.9	21.00	2.06	Dark brown	Very strong, butyric and valerianic	Clean
2719	*Humulus lupulus* L.	Hops	Strobiles	Medium brown	10.5	1.5	10.28	1.28	Medium brown	Very strong, butyric and valerianic	Clean
2429	*Hydrangea arborescens* L.	Hydrangea	Roots	Light gray	3.2	0.4	1.76	0.14	Very light yellow	Slightly sweetish	Clean
2048	*Hydrangea arborescens* L.	Hydrangea	Roots	Light gray	5.6	2.1	1.52	0.14	Very light yellow	Slightly sweetish	Fairly clean
8297	*Hydrangea arborescens* L.	Hydrangea	Roots	Very light gray	3.8	0.6	2.40	0.12	Very light yellow		Clean
2159	*Hydrastis canadensis* L.	Goldenseal	Roots	Yellowish green	6.4	1.9	2.40	0.16	Light greenish yellow	Slight, characteristic	Clean
2089	*Hydrastis canadensis* L.	Goldenseal	Roots	Yellowish green	5.4	1.8	2.24	0.12	Light greenish yellow	Slight, characteristic	Clean
2018	*Ilex verticillata* (L.) *A. Gray*	Black Alder	Tree bark	Light brownish gray	3.3	0.1	6.00	0.52	Light yellow-green		Clean
2495	*Ilex opaca Ait.*	Holly	Tree bark	Medium light brown	4.6	0.6	2.88	0.20	Light yellow-green	Sweetish, somewhat suggestive of maple syrup	Clean
2663	*Ilex opaca Ait.*	Holly	Tree bark	Medium light brown	3.7	0.5	2.50	0.14	Very light yellow-green	Sweetish, somewhat suggestive of maple syrup	Clean
2058	*Impatiens pallida Nutt.*	Jewel Weed	Herb (40% stems)	Medium dark brown	12.0	3.4	2.42	0.14	Medium brownish green	Sour	Clean
2471	*Inula helenium* L.	Elecampane	Root	Medium grayish brown	14.5	7.6	5.88	0.68	Light brown	Suggestive of spikenard	Somewhat dirty

2385	*Ipomoea pandurata* (L.) *Meyer*	Man Root (Wild potato)	Root	Light brown	8.7	1.2	2.52	0.10	Medium light brown		Clean
2286	*Iris versicolor* L.	Blue Flag	Root	Medium reddish brown	4.7	0.6	1.48	0.12	Very light greenish yellow	Faint, suggestive of celery seed and cocoanut oil	Clean
2723	*Iris versicolor* L.	Blue Flag	Root	Medium reddish brown	4.5	0.5	1.34	0.02	Very light yellow	Faint, suggestive of celery seed and cocoanut oil	
2347	*Juglans cinera* L.	Butternut	Root bark	Very dark brown	5.9	0.8	5.50	0.30	Dark brown		Clean
2711	*Juglans cinera* L.	Butternut	Root bark	Very dark brown	6.8	0.4	6.66	0.28	Dark brown		Clean
2626	*Juglans cinera* L.	Butternut	Tree bark, rossed	Dark brown	5.8	0.3	10.90	0.46	Dark brown		Clean
2547	*Juglans cinera* L.	Butternut	Leaves	Dark greenish brown	13.1	4.1	3.36	0.10	Very dark green	Acidic, suggestive of new leather	Somewhat dusty
2540	*Juglans nigra* L.	Black Walnut	Root bark	Very dark brown	7.8	1.0	3.50	0.26	Dark green-brown		Clean
2667	*Juglans nigra* L.	Black Walnut	Tree bark, rossed	Light grayish brown	7.5	0.1	18.44	1.08	Medium brown	Slightly aromatic, sweetish	Clean
2583	*Juglans nigra* L.	Black Walnut	Leaves	Medium greenish brown	8.4	0.8	8.02	0.36	Dark green-brown	Slightly aromatic, sour, smoky	Clean
2707	*Juglans nigra* L.	Black Walnut	Hulls	Very dark brown	6.2	1.0	0.64	0.04	Greenish brown	Dusty, sweetish	Clean
2413	*Juglans nigra* L.	Black Walnut	Hulls	Very dark brown	6.5	0.1	1.12	0.30	Greenish brown	Dusty, sweetish	Clean
2682	*Juniperus virginiana* L	Cedar	Berries	Rich brown	5.4	0.2	14.50	1.30	Greenish brown	Pleasant, aromatic, slightly suggestive of rue	Clean
											Clean
2560	*Kalmia latifolia* L.	Laurel	Berries (25% peduncles)	Medium reddish brown	2.1	0.2	7.22	0.23	Light greenish cream		Clean
2061	*Kalmia latifolia* L.	Laurel	Leaves	Medium greenish brown	4.2	1.5	6.74	0.16	Mottled light and dark green	Sour, somewhat suggestive of beeswax and yerba santa	Clean
2708	*Lacinaria spicata* (L.) *Kuntze*	Gayfeather (Button Snakeroot)	Rhizome and roots	Dark grayish brown	14.8	2.8	15.80	0.74	Very light brown	Aromatic, slightly suggestive of elecampane	Slightly dirty
1994	*Lacinaria squarrosa Willd.*	Blazing Star	Rhizome and roots	Medium grayish brown	4.9	0.9	4.54	0.90	Light brownish yellow	Aromatic, slightly suggestive of elecampane and spikenard	Clean
2706	*Lactuca virosa* L.	Wild lettuce	Leaves	Medium brownish green	15.5	3.2	6.32	0.18	Very dark green, nearly black	Slightly sour	Fairly clean
2699	*Lactuca virosa* L.	Wild lettuce	Root	Light grayish brown	8.2	1.4	1.52	0.12	Light yellow		Clean
2558	*Lavandula spica D. C.*	Lavender	Herb (30% stems)	Medium greenish brown	11.5	2.1	8.98	0.62	Medium green	Characteristic	Somewhat dirty
2417	*Leonurus cardiaca* L.	Motherwort (Mountain Mint)	Leaves	Medium green	15.9	2.8	4.74	0.34	Dark brown-green	Sour	Clean

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extract. Total.	Ether extract. Volatile.	Color.	Odor.	Remarks.
2690	*Leonurus cardiaca* L.	Motherwort (Mountain Mint)	Herb (15% stems)	Medium brownish green	10.3	0.6	4.58	0.30	Very dark brownish green	Sour	Clean
2502	*Leptamnium virginianum* (L.) *Raf.*	Beech drops	Herb	Medium brown	6.1	1.7	1.76	0.10	Very light yellow-green	Slight, fatty	Clean
2054	*Leptilon canadense* (L.) *Britton*	Canada Fleabane	Herb	Light brownish green	9.7	2.1	5.36	0.34	Very dark green	Sour	Clean
2692	*Ligustrum vulgare* L.	Privet	Leaves	Medium brownish green	6.0	4.7	2.28	0.12	Medium brownish green	Pleasant, aromatic, suggestive of beeswax	Somewhat dirty
1987	*Liquidamber styraciflua* L.	Sweet Gum	Tree bark, rossed	Medium reddish brown	9.3	0.2	8.80	0.12	Orange-brown		Clean
2409	*Liriodendron tulipifera* L.	White Poplar	Tree bark, rossed	Very light brown	2.5	0.4	9.90	0.56	Very light greenish brown	Rancid	Clean
2589	*Liriodendron tulipifera* L.	Yellow Poplar	Tree bark	Very light brown	2.7	0.2	8.02	0.56	Greenish brown	Fatty, bland	Clean
2047	*Lobaria pulmonaria* L.	Lung Moss	Lichen	Light brownish green	11.5	7.7	7.12	0.68	Cream and greenish brown mottled	Suggestive of varnish	Dusty; ether extract became deep purple when heated
2039	*Lobelia cardinalis* L.	Red Cardinal	Herb	Medium greenish brown	13.0	1.9	6.40	0.12	Brown-green	Somewhat suggestive of new linoleum	Dusty
2032	*Lobelia inflata* L.	Lobelia	Leaves and pods (35% stems)	Light grayish green	9.1	3.1	9.33	0.23	Medium light green		Clean
1996	*Lobelia inflata* L.	Lobelia	Seed	Very dark brown	21.9	13.1	27.90	0.00	Medium dirty green	Suggestive of olive oil	Dusty; ether extract gained 0.54% when heated
2346	*Lobelia inflata* L.	Lobelia	Seed	Very dark brown	14.8	9.1	27.72	0.24	Medium dirty green	Suggestive of olive oil	Somewhat dusty
2275	*Lobelia inflata* L.	Lobelia	Herb (30% stems)	Light grayish green	10.7	2.1	6.80	9.28	Dark green-brown	Unpleasant, nauseous	Clean
2722	*Lobelia inflata* L.	Lobelia	Herb (35% stems)	Light grayish green	11.2	3.4	6.35	0.19	Dark green-brown	Unpleasant, nauseous	Clean
2071	*Lonicera sempervirens* L.	Honeysuckle	Leaves	Medium brown	5.7	1.2	3.50	0.20	Mottled light and dark green	Slightly suggestive of leather	Clean
2604	*Lycopodium complanatum* L.	Ground Pine	Herb	Light grayish green	13.9	0.1	2.68	0.10	Medium brown-green		Clean
2076	*Lycopus europeus* L.	Bitter Bugle	Herb (60% stems)	Light grayish brown	10.4	0.9	7.44	0.70	Medium green	Very slightly suggestive of mint	Clean; large amount of stems normal

2414 *Lycopus virginicus* L.	Bugleweed	Herb (30% stems)	Light grayish brown	7.9	0.4	4.35	0.33	Medium green-brown	Peppery	Clean
2512 *Lycopus virginicus* L.	Bugleweed	Herb (40% stems)	Medium greenish brown	8.7	1.8	4.20	0.30	Medium dark green	Peppery, suggestive of "T. M." shoe polish	Clean
2049 *Lycopus virginicus* L.	Sweet Bugleweed	Herb (50% stems)	Medium greenish brown	11.4	2.7	3.21	0.17	Medium green-brown	Peppery	Clean
2031 *Magnolia virginiana* L.	Magnolia	Tree bark	Very light yellowish brown	1.7	0.2	6.88	0.28	Rich brown	Slightly aromatic, sweetish	Clean
2019 *Magnolia (foetida* L. ?)	Southern Magnolia	Tree bark	Medium brown	7.9	3.9	2.00	0.20	Light green-yellow	Terebinthinate, suggestive of powdered resin	Fairly clean
2067 *Malva sylvestris* L.	Mallow	Leaves	Medium grayish brown	9.3	1.7	2.70	0.06	Medium brown-green		Dusty
2439 *Marrubium vulgare* L.	Horehound	Herb (35% stems)	Grayish green	12.0	3.2	5.20	0.46	Very dark green	Aromatic, characteristic	Clean
2531 *Marrubium vulgare* L.	Horehound	Herb (30% stems)	Medium grayish green	22.4	8.0	4.78	0.32	Very dark green	Aromatic, characteristic	Slightly dirty
2317 *Marrubium vulgare* L.	Horehound	Leaves	Medium grayish green	16.4	2.6	6.74	0.51	Very dark green	Aromatic, characteristic	Slightly dirty
2492 *Marrubium vulgare* L.	Horehound	Leaves	Medium grayish green	21.5	7.5	5.66	0.42	Very dark green	Sweetish, characteristic	Somewhat dirty
2335 *Melissa officinalis* L.	Balm	Herb (45% stems)	Dark grayish green	11.5	0.8	2.14	0.29	Medium dark green	Characteristic, somewhat suggestive of lemon	Clean
2015 *Melissa officinalis* L.	Balm	Leaves	Dark grayish green	14.0	1.2	3.60	0.22	Medium dark green	Characteristic, somewhat suggestive of lemon	Clean
2423 *Menispermum canadense* L.	Yellow Parilla	Root	Light brownish gray	4.3	0.7	1.04	0.14	Brownish yellow	Dusty, sweetish	Clean
2564 *Menispermum canadense* L.	Yellow Parilla	Root	Light brownish gray	3.9	0.6	0.84	0.08	Brownish yellow	Musty, fetid	Clean
1975 *Menispermum canadense* L.	Yellow Parilla	Root	Light brownish gray	4.4	1.2	0.96	0.10	Brownish yellow	Dusty, sweetish	Clean
1975-a *Menispermum canadense* L.	Yellow Parilla	Root	Light brownish gray	3.4	0.7	0.90	0.20	Yellowish brown	Dusty, sweetish	Clean
2313 *Mentha piperita* L.	Peppermint	Leaves	Medium grayish green	12.2	1.3	6.16	0.60	Dark brownish green	Characteristic	Clean
2331 *Mentha piperita* L.	Peppermint	Leaves	Medium grayish green	13.8	1.0	5.16	0.38	Dark brown-green	Characteristic	Clean
2695 *Mentha piperita* L.	Peppermint	Leaves	Medium grayish green	11.7	1.0	4.08	0.44	Dark brown-green	Characteristic	Clean
2601 *Mentha piperita* L.	Peppermint	Herb (30% stems)	Medium grayish green	11.9	0.6	3.47	0.52	Dark brown-green	Characteristic	Clean; stems normal

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. %	Acid insoluble.	Ether extract. Total.	Volatile.	Color.	Odor.	Remarks.
2504	*Mentha spicata* L.	Spearmint	Herb (55% stems)	Medium grayish brown	8.8	0.9	4.26	0.43	Medium green	Characteristic	Clean
2570	*Mentha spicata* L.	Spearmint	Leaves	Dark grayish green	13.4	2.0	4.14	0.76	Dark green	Characteristic, also slightly fishy	Clean
2457	*Mitchella repens* L.	Squaw Vine or Hive Vine	Herb (55% stems)	Medium greenish gray	7.1	0.6	3.22	0.20			Clean
2631	*Mitchella repens* L.	Squaw Vine or Hive Vine	Herb (65% stems)	Medium greenish gray	7.3	1.2	2.30	0.08	Medium brown-green	Suggestive of putty	Clean
2527	*Monarda didyma* L.	Oswego Tea	Herb	Medium greenish brown	8.5	0.9	8.10	0.40	Medium green	Slightly musty, tea-like	Clean
2440	*Monarda punctata* L.	Horsemint	Herb	Medium greenish brown	7.8	1.5	6.08	1.06	Medium dark green	Thymol-like, strong	Clean
2580	*Monotropa uniflora* L.	Eyebright (Indian Pipe)	Herb	Dark reddish brown	9.6	2.6	5.66	0.18	Creamy green	Suggestive of aniline	Slightly dusty
2079	*Morus nigra* L.	Mulberry	Root bark	Very light brown-yellow	10.3	2.8	6.58	0.72	Reddish brown		Clean
2716	*Myrica cerifera* L.	Southern Bay-berry	Root bark	Light yellowish brown	3.8	0.7	2.82	0.24	Medium yellow		Clean
2050	*Nabulus albus* (L.) *Hook.*	Lion's Foot	Leaves	Medium brownish green	12.5	1.9	5.38	0.20	Medium brown-green	Suggestive of coumarin	Rather dusty
2011	*Neopieris mariana* (L.) *Britton*	Wicky	Herb (10% stems)	Medium brown	3.7	0.5	11.78	0.54	Yellowish green		Clean
2370	*Nepeta cataria* L.	Catnip	Leaves	Medium brownish green	12.9	1.7	8.68	0.86	Dark brown-green	Characteristic	Clean
2632	*Nepeta cataria* L.	Catnip	Leaves	Medium brownish green	15.5	3.0	7.02	0.50	Dark brown-green	Characteristic	Clean
2304	*Nepeta cataria* L.	Catnip	Leaves	Medium olive-green	15.2	2.2	9.92	0.80	Dark brown-green	Characteristic	Clean
2684	*Nymphaea advena Soland.*	Water Lily	Root	Light brown	8.7	2.9	1.16	0.06	Very light yellow		Clean
2697	*Oenothera biennis* L.	Evening Primrose	Leaves	Medium grayish green	4.7	1.4	4.24	0.18	Dark green	Sour	Clean
2308	*Oxydendron arboreum* L.	Sourwood	Leaves	Dark greenish brown	6.9	0.7	3.95	0.46	Dark brownish green	Suggestive of clover hay	Clean
2345	*Oxydendron arboreum* L.	Sourwood	Leaves	Dark greenish brown	7.4	3.2	5.98	0.52	Dark brownish green	Suggestive of clover hay	Slightly dusty
2650	*Oxydendron arboreum* L.	Sourwood	Tree bark	Medium reddish brown	3.0	0.4	5.58	0.32	Light yellow-brown	Slightly sour	Clean
2668	*Papaver somniferum* L.	Poppy	Leaves	Medium brownish green	22.0	1.4	2.80	0.12	Medium dark green	Raw, somewhat acid	Slightly dusty; ash high in carbonates

2493	*Papaver somniferum* L.	Poppy	Flowers	Dark reddish brown	13.4	2.2	2.36	0.12	Light greenish brown	Slightly aromatic	Slightly dusty
2505	*Parthenium integrifolium* L.	Cutting Almond	Root	Medium greenish gray	6.0	2.2	2.38	0.58	Brownish yellow	Faint; suggestive of elecampane	Clean
2566	*Parthenium integrifolium* L.	Cutting Almond	Tops (20% stems)	Medium brownish green	8.6	1.0	3.36	0.42	Dark green	Peppery	Clean
2036	*Parthenocissus quinquefolia* (L.) *Planch.*	American Ivy	Root bark	Light reddish gray	8.7	0.7	0.68	0.14	Very light green-yellow		Clean
2332	*Passiflora incarnata* L.	Passion Flower	Herb (40% stems)	Medium brownish green	10.3	2.2	4.03	0.17	Medium greenish brown		Clean
2041	*Passiflora incarnata* L.	May Pop	Herb (45% stems)	Medium brownish green	11.0	2.2	3.28	0.13	Medium greenish brown	Caramelized; suggestive of licorice extract	Clean
2658	*Passiflora incarnata* L.	May Pop	Root	Very light brown	5.1	0.4	0.84	0.14	Brownish cream	Stroing, raw, suggestve of opium	Clean
2060	*Persea borbonia* (L.) *Spreng*	Sweet Bay	Leaves	Medium greenish brown	5.6	1.3	6.18	0.58	Medium dark green	Aromatic, terebinthinate, also suggestive of cedar wood	Clean
2642	*Persicaria hydropiper* (L.) *Opiz.*	Water Pepper	Herb (35% stems)	Grayish green	10.4	0.6	3.54	0.36	Medium brownish green	Faintly aromatic, peppery	Clean
2675	*Phoradendron flavescens* (*Pursh.*) *Nutt.*	Mistletoe	Herb (60% stems)	Medium brown	6.0	0.5	6.76	0.14	Medium brown		Clean
2362	*Phytolacca decandra* L.	Poke	Root	Medium light brown	18.1	2.4	0.70	0.06	Nearly colorless, greenish tinge		Clean; ash high in carbonates
2281	*Phytolacca decandra* L.	Poke	Root	Medium light brown	15.1	1.0	1.26	0.08	Nearly colorless, greenish tinge		Clean; ash high in carbonates
2517	*Phytolacca decandra* L.	Poke	Root	Medium light brown	9.5	0.6	2.24	0.14	Nearly colorless, greenish tinge		Clean; ash high in carbonates
2419	*Phytolacca decandra* L.	Poke	Berries	Medium dark brown	3.4	0.3	9.18	0.50	Light olive-green		Clean; ash high in carbonates
2501	*Pilea pumila* (L.) *A. Gray*	Stingless Nettle	Herb (30% stems)	Brownish green	22.7	1.8	1.66	0.20	Medium light green	Sour	Slightly dusty; ash high in carbonates
2530	*Pinus strobus* L.	White Pine	Bark	Very light brown	1.8	0.1	5.92	0.28	Light brownish yellow	Characteristic odor of pine boards	Clean
2446	*Pinus strobus* L.	White Pine	Bark, rossed thin	Very light brown	1.9	0.2	4.92	0.38	Light brownish yellow	Characteristic odor of pine boards	Clean
2710	*Plantago major* L.	Plantain	Leaves	Medium dark brownish green	13.8	1.3	3.16	0.18	Very dark green, nearly black	Earthy, slightly sour	Clean; ash high in carbonates
2309	*Podophyllum peltatum* L.	Mandrake	Root	Light greenish brown	3.0	0.3	5.14	0.52	Light greenish yellow	Raw, earthy	Clean
2057	*Podophyllum peltatum* L.	Mandrake	Root	Light greenish brown	4.1	0.5	2.60	0.22	Light greenish yellow	Raw, earthy	Clean
2408	*Podophyllum peltatum* L.	May Apple	Root	Light greenish brown	5.3	1.9	7.06	0.50	Light greenish yellow	Raw, earthy	Clean

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extract. Total.	Ether extract. Volatile.	Color.	Odor.	Remarks.
2023	*Polygala nuttallii T. & G.*	Ground Centaury (Star Thistle)	Herb	Light brownish green	2.6	1.0	3.54	0.22	Medium green	Sour, slightly suggestive of coumarin	Clean
2306	*Polygala senega* L.	Senega Snakeroot	Root	Light greenish brown	5.9	3.2	10.76	0.70	Greenish yellow	Wintergreen	Fairly clean
2514	*Polygala senega* L.	Senega Snakeroot	Root	Light greenish brown	4.5	2.4	8.84	0.52	Greenish yellow	Sweet, fatty, faint wintergreen	Fairly clean
2611	*Polygala senega* L.	Southern Senega Snakeroot	Root	Light greenish brown	7.3	4.1	12.12	0.42	Medium light brown	Fatty, very faint wintergreen	Fairly clean
2452	*Polygonatum commutatum* (*R. & S.*) Dietr.	Solomon's Seal	Root	Light greenish brown	3.9	0.5	1.14	0.28	Light brownish yellow	Pleasant, somewhat nutty	Clean
2677	*Polygonatum commutatum* (*R. & S.*) Dietr.	Solomon's Seal	Root	Light greenish brown	3.8	1.0	0.82	0.20	Light brownish yellow	Pleasant, somewhat nutty	Clean
2298	*Polymnia uvedalia* L.	Bearsfoot	Root	Medium grayish brown	14.7	4.0	2.72	0.24	Light brown	Somewhat terebinthinate, also suggestive of hydrastis	Dirty
2646	*Polymnia uvedalia* L.	Bearsfoot	Root	Medium grayish brown	8.5	1.2	5.42	0.82	Light brown	Somewhat terebinthinate, also suggestive of hydrastis	Fairly clean
2576	*Polymnia uvedalia* L.	Bearsfoot	Leaves	Dark greenish brown	14.1	0.9	3.00	0.16	Medium dark green	Slight suggestion of copaiba balsam	Fairly clean; ash high in carbonates
2568	*Polytrichum juniperinum Hedw.*	Haircap Moss	Moss	Dark reddish brown	12.0	9.8	1.98	0.10			Dusty
2595	*Populus alba* L.	Aspen	Bark	Light greenish brown	7.2	0.3	8.92	0.54	Light yellowish green	Suggestive of esters in ensilage	Clean
1989	*Populus candicans Ait.*	Balm of Gilead	Buds	No powder	2.7	0.5	56.18	15.30	Dark brown	Balsamic, resembling Peru balsam	Clean
2318	*Populus candicans Ait.*	Balm of Gilead	Buds	No powder	2.1	....	60.06	12.38	Dark brown	Balsamic, resembling Peru balsam	Clean
2359	*Populus candicans Ait.*	Balm of Gilead	Buds	No powder	2.9	0.9	62.28	10.92	Dark brown	Balsamic, resembling Peru balsam	Clean
2367	*Porteranthus trifoliatus* (L.) *Britton*	Indian Physic	Root	Medium grayish green	10.3	6.5	4.92	0.50	Bright greenish yellow		Dirty
2546	*Porteranthus trifoliatus* (L.) *Britton*	Indian Physic	Root	Medium grayish green	10.2	2.9	4.60	0.34	Bright greenish yellow		Clean
2045	*Potentilla canadensis* L.	Cinquefoil	Herb (55% stems)	Light grayish brown	7.1	1.2	2.74	0.15	Medium dark green	Sour	Clean
2552	*Prunella vulgaris* L.	Healall	Herb (25% stems)	Medium brown	7.1	1.5	3.67	0.16	Medium brownish green	Somewhat minty	Clean

2600	*Prunus cerasus* L.	Cherry, cultivated	Leaves	Medium olive-green	8.4	1.3	6.86	0.20	Dark green	Sweetish, suggestive of coumarin	Somewhat dusty
2532	***Prunus cerasus*** L.	Cherry, cultivated	Bark, rossed	Light brown	5.8	0.6	3.26	0.22	Light greenish yellow		Clean
2084	*Prunus serotina Ehrh.*	Cherry, wild	Bark, unrossed	Medium reddish brown	2.6	0.1	3.34	0.22	Light greenish yellow		Clean
2633	*Prunus serotina Ehrh.*	Cherry, wild	Bark, medium unrossed	Light reddish brown	3.1	0.4	5.32	0.60	Light brown-green		Clean
2433	*Prunus serotina Ehrh.*	Cherry, wild	Bark, medium rossed	Light reddish brown	3.7	1.4	5.28	0.68	Light brown-green		Clean
2451	*Prunus serotina Ehrh.*	Cherry, wild	Bark, thick rossed	Light reddish brown	3.0	0.1	2.72	0.36	Light brown-green		Clean
2404	*Prunus serotina Ehrh.*	Cherry, wild	Bark, thick unrossed	Light reddish brown	3.2	0.2	4.66	0.40	Light brown-green		Clean
2421	*Prunus serotina Ehrh.*	Cherry, wild	Bark, thin, unrossed	Light reddish brown	7.2	3.2	3.70	0.48	Light brown-green		Fairly clean
2310	*Prunus serotina Ehrh.*	Cherry, wild	Bark, thin, rossed	Light brown	3.2	0.1	3.64	0.50	Light brown-green		Clean
2437	*Prunus serotina Ehrh.*	Cherry, wild	Bark, thin, rossed	Light brown	4.1	0.1	5.00	0.60	Light brown-green		Clean
2623	*Prunus serotina Ehrh.*	Cherry, wild	Tree bark, young rossed	Light grayish brown	5.1	0.1	3.38	0.32	Light green		Clean
2624	*Prunus serotina Ehrh.*	Cherry, wild	Tree bark, young rossed	Light reddish brown	5.5	0.2	3.42	0.38	Greenish tinge, nearly colorless		Clean
2712	*Psoralea pedunculata (Mill.) Vail*	Samson's Snakeroot	Rhizome and root	Medium yellowish brown	4.7	1.8	13.02	0.76	Light greenish yellow	Raw, fatty	Clean
2337	*Psoralea pedunculata (Mill.) Vail*	Samson's Snakeroot	Rhizome and root	Medium yellowish brown	6.6	2.8	14.56	0.52	Brownish yellow	Raw, fatty	Fairly clean
2571	*Ptelia trifoliata* L.	Wafer Ash	Root bark	Light grayish brown	6.8	0.5	24.46	0.56	Greenish yellow	Bland, fatty, nutty	Clean
1985	*Ptelia trifoliata* L.	Wafer Ash	Berries	Dark brown	2.0	0.3	20.94	0.24	Medium green-yellow	Suggestion of bay laurel	Clean
2486	*Punica granatum Lin.*	Pomegranate	Fruit rind	Dark yellowish brown	5.0	0.6	1.54	0.12	Light yellow	Bland, fatty	Clean
2372	*Quercus alba* L.	White Oak	Tree bark, rossed	Light brown	6.7	2.1	2.02	0.18	Very light creamy brown		Fairly clean
2068	*Quercus alba* L.	White Oak	Tree bark, rossed	Light brown	6.5	0.3	1.62	0.10	Very light creamy brown		Clean
2653	*Quercus nigra* L.	Black Oak	Tree bark, rossed	Light brown	5.4	0.4	9.36	0.70	Brownish yellow	Like oak wood	Clean
2629	*Quercus rubra* L.	Red Oak	Tree bark, rossed	Light reddish brown	2.55	0.1	3.24	0.36	Very light brown		Clean
2098	*Rhamnus purshiana* D. C.	Cascara sagrada	Tree bark	Medium brown	4.1	0.1	3.90	0.22	Rich yellow-brown	Fatty, sour	Clean
2769	*Rhamnus purshiana* D. C.	Cascara sagrada	Tree bark	Medium brown	6.5	0.1	4.20	0.28	Creamy brown	Sweetish, slightly acid	Clean
2016	*Rhus glabra* L.	Sumac	Tree bark	Light brown	5.2	0.5	14.85	0.70	Medium green-brown	Sour, slightly aromatic	Clean
2044	*Rhus glabra* L.	Sumac	Tree bark	Light brown	8.0	2.3	11.54	1.28	Medium brown	Faintly aromatic	

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extact. Total.	Ether extact. Volatile.	Color.	Odor.	Remarks.
2537	*Rhus glabra* L.	Sumac	Leaves	Brownish green	5.9	1.7	10.72	0.80	Medium dark green	Aromatic, tea-like	Clean
2378	*Rhus glabra* L.	Sumac	Leaves (25% petiole)	Brownish green	5.8	1.3	9.82	0.64	Medium dark green	Aromatic, tea-like	Clean
2615	*Rhus glabra* L.	Sumac	Berries	Dark reddish brown	2.6	0.2	12.10	0.48	Medium dark brown		Clean
2578	*Ricinus communis* L.	Palm Christi (Mold Bean)	Leaves	Medium olive-green	14.5	3.1	4.44	0.36	Very dark brown-green	Sour	Clean
2453	*Rosa gallica* L.	Roses	Petals	Medium reddish brown	8.1	2.9	3.80	0.22	Very light green-yellow	Characteristic	Clean
2005	*Rosa gallica* L.	Roses	Petals	Medium reddish brown	6.5	1.3	3.52	0.28	Very light green-yellow	Characteristic	Clean
2655	*Rosa gallica* L.	Roses	Petals pale	Light yellowish brown	4.6	0.8	3.88	0.44	Very light green-yellow	Strong	Clean
2394	*Rubus species*	Blackberry	Root	Medium brown	3.9	1.4	2.24	0.20	Cream		Clean
2574	*Rubus species*	Blackberry	Root	Light brown	4.1	1.1	1.60	0.10	Creamy white		Clean
2365	*Rubus species*	Blackberry	Root	Light brown	4.3	0.7	1.46	0.10	Creamy white		Clean
2610	*Rubus strigosus Michx.*	Raspberry	Leaves	Grayish green	8.2	0.5	4.78	0.18	Dark brown-green	Aromatic, somewhat tea-like, sourish	Clean
2577	*Rudbeckia laciniata* L.	Thimble Weed	Herb	Brownish green	14.7	3.6	12.44	0.26	Dark brown-green	Peppery, somewhat suggestive of coumarin	Somewhat dirty
2554	*Rumex acetosella* L.	Sheep sorrel	Herb (largely stems)	Grayish brown	6.5	1.0	3.28	0.30	Medium green	Slightly aromatic	Clean; normally consists largely of stems
2380	*Rumex crispus* L.	Yellow Dock	Root	Light yellowish brown	5.1	0.4	1.90	0.32	Yellowish brown	Somewhat suggestive of rhubarb	Clean
2285	*Rumex crispus* L.	Yellow Dock	Root	Light yellowish brown	5.3	0.5	1.40	0.08	Yellowish brown		Clean
2700	*Rumex crispus* L.	Yellow Dock	Root	Light yellowish brown	8.9	1.9	2.14	0.24	Yellowish brown		Clean
1991	*Ruta graveolens* L.	Rue	Herb (20% stems)	Brownish green	12.9	4.6	4.76	0.32	Medium dark greenish brown	Slightly suggestive of cocoanut oil and of sabal	Slightly dirty
2428	*Sabbatia angularis* (L.) Pursh.	Amer. Centaury	Herb (60% stems)	Brownish green	4.7	0.4	2.62	0.25			Clean; large amt. of stems normal
2046	*Sabbatia elliottii Steud.*	Quinine Plant	Herb (nearly all stem)	Light brown	2.3	0.3	2.50	0.10	Medium light green		Clean; large amt. of stems normal

2496	*Salix alba* L.	White Willow	Tree bark, rossed	Reddish brown	4.8	0.2	0.80	0.12	Light cream		Clean
2542	*Salix nigra Marsh.*	Black Willow	Tree bark, rossed	Light grayish brown	5.3	0.1	2.98	0.26	Light green	Sweet, aromatic, somewhat like sweet clover	Clean
2388	*Salix nigra Marsh.*	Pussy Willow	Tree bark	Medium brown	4.4	0.2	3.10	0.25	Light green	Sweet, aromatic, somewhat like sweet clover	Clean
2305	*Salix nigra Marsh.*	Pussy Willow	Buds	Greenish gray	10.45	3.0	3.56	0.20	Brownish green	Pleasant, aromatic, suggestive of white clover flowers	Fairly clean
2628	*Salix nigra Marsh.*	Pussy Willow	Buds	Greenish gray	6.1	0.5	2.60	0.18	Brownish green	Pleasant, aromatic, suggestive of white clover flowers	Clean
2353	*Salix nigra Marsh.*	Pussy Willow	Buds	Greenish gray	7.9	1.75	3.64	0.32	Brownish green	Pleasant, aromatic, suggestive of white clover flowers	Clean
2398	*Salvia officinalis* L.	Sage	Leaves	Brownish green	11.3	1.4	9.76	1.26	Dark green	Characteristic	Clean
2489	*Salvia officinalis* L.	Sage	Leaves	Brownish green	10.0	0.7	5.24	0.94	Dark green	Characteristic	Clean
2282	*Sambucus canadensis* L.	Elder	Flowers	Light greenish brown	6.5	0.3	7.16	0.24	Light greenish yellow	Faintly aromatic, sweetish, somewhat raw	Clean
2396	*Sambucus canadensis* L.	Elder	Flowers	Light greenish brown	7.2	0.4	8.36	0.34	Light greenish yellow	Faintly aromatic, sweetish, somewhat raw	Clean
2509	*Sambucus canadensis* L.	Elder	Flowers	Light greenish brown	6.8	0.7	8.34	0.28	Light greenish yellow	Faintly aromatic, sweetish	Clean
2066	*Sambucus canadensis* L.	Elder	Bark	Light grayish brown	5.6	0.5	4.44	0.18	Light yellow-green	Faintly aromatic	Clean
1982	*Sanguinaria canadensis* L.	Bloodroot	Rhizome and root	Reddish brown	5.9	1.9	2.70	0.22	Orange-red	Raw, somewhat suggestive of capsicum	Slightly dirty
2438	*Sanguinaria canadensis* L.	Bloodroot	Rhizome	Brownish red	6.6	1.3	4.08	0.28	Orange-red	Raw, somewhat suggestive of capsicum	Clean
2669	*Sanguinaria canadensis* L.	Bloodroot	Rhizome and root	Reddish brown	5.8	1.4	2.98	0.26	Orange-red	Pungent	Clean
2264	*Sanguinaria canadensis* L.	Bloodroot	Rhizome	Brownish red	11.2	4.4	3.32	0.32	Orange-red	Pungent	Dirty
2516	*Sanguinaria canadensis* L.	Bloodroot	Rhizome	Brownish red	4.6	0.3	2.90	0.16	Orange-red	Pungent	Clean
2686	*Saponaria officinalis* L.	Soapwort	Herb (65% stems)	Medium brown	8.3	0.7	1.19	0.10	Light green	Sour	Clean
2020	*Sarracenia purpurea* L.	Pitcher Plant (Eve's Cup)	Leaves	Light greenish gray	3.5	1.3	4.52	0.14	Medium dark green	Sour	Clean
2679	*Sarracenia purpurea* L.	Pitcher Plant (Eve's Cup)	Rhizome and roots	Medium brown	3.6	2.0	5.06	0.24	Creamy yellow		Dirty
2086	*Sarracenia flava* L.	Trumpets (Pitcher Plant)	Leaves	Greenish gray	3.5	0.3	2.40	0.08	Medium light green		Clean
2681	*Sarracenia flava* L.	Trumpets (Pitcher Plant)	Rhizome and roots	Medium brown	11.4	9.5	6.70	0.24	Creamy yellow		Dirty

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extract. Total.	Ether extract. Volatile.	Color.	Odor.	Remarks.
2272	*Sassafras variifolium* L.	Sassafras	Root bark	Light reddish brown	7.0	2.5	10.30	3.32	Medium reddish brown	Characteristic	Clean
1978	*Sassafras variifolium* L.	Sassafras	Root bark	Reddish brown	5.3	4.0	12.88	2.94	Medium reddish brown	Characteristic	Somewhat dirty
2354	*Sassafras variifolium* L.	Sassafras	Root bark	Reddish brown	2.5	0.5	8.96	3.26	Medium reddish brown	Characteristic	Clean
2515	*Sassafras variifolium* L.	Sassafras	Root bark	Reddish brown	3.7	1.3	6.58	2.40	Yellowish brown	Characteristic	Clean
2456	*Sassafras variifolium* L.	Sassafras	Tree bark	Light reddish brown	2.7	0.3	4.74	0.46			Clean
2004	*Sassafras variifolium* L.	Sassafras	Pith	Very light gray	1.2	0.5	0.52	0.08	Very light green		Clean
2442	*Sassafras variifolium* L.	Sassafras	Pith	Very light gray	1.1	0.3	0.88	0.18	Very light green		Clean
2541	*Sassafras variifolium* L.	Sassafras	Leaves	Greenish brown	8.6	5.1	5.00	0.34	Dark brown-green	Aromatic, somewhat suggestive of bay laurel and pepper; altogether unlike root bark	Somewhat dusty
2596	*Scrofularia marylandica* L.	Scrofula Plant (Carpenter's Square)	Herb (55% stems)	Olive-green	6.0	0.3	2.82	0.13	Dark brown-green		Somewhat dusty
2524	*Scrofularia marylandica* L.	Scrofula Plant (Carpenter's Square)	Root	Dark grayish	4.2	0.3	0.68	0.16	Slight yellow tinge		Somewhat dusty
2672	*Scutellaria lateriflora* L.	True Skullcap	Herb (50% stems)	Grayish green	8.6	1.4	3.28	0.12	Medium dark green	Sour	Somewhat dusty
2680	*Scutellaria pilosa Michx.*	Hairy Skullcap (Soft Skullcap)	Herb (40% stems)	Grayish green	11.3	1.5	2.69	0.15	Medium dark brownish green	Sour, slightly suggestive of Swiss cheese	Somewhat dusty
2666	*Scutellaria saxatilis Riddell*	Hard Skullcap	Herb (30% stems)	Grayish green	6.5	0.7	3.82	0.10	Medium dark green	Sour	Somewhat dusty
2587	*Sedum acer* L.	Stonecrop	Herb (largely stems)	Grayish green	6.3	0.4	2.42	0.24	Dark green		Somewhat dusty; large amount of stems normal
2081	*Senecio aureus* L.	Liferoot Plant	Herb (50% stems)	Brownish green	11.8	3.6	4.77	0.39	Medium brown-green	Raw	Clean
2063	*Serenoa serrulata* L.	Palmetto Sabal	Fruits	Rich brown	3.3	0.4	13.96	0.48	Medium brown	Strongly suggestive of cocoanut oil	Clean
2881	*Silphium laciniatum* L.	Rosin Weed	Roots	Dark brown	11.8	1.0	2.40	0.40	Light yellow	Somewhat acrid	Clean
2382	*Smilax pseudo-china* L.	Bamboo briar	Roots	Light grayish brown	2.8	0.4	0.48	0.08	Nearly colorless	Faint, slight suggestion of licorice extract	Clean

2620	*Smilax pseudo-china* L.	Bamboo briar	Roots	Light grayish brown	3.0	0.5	0.36	0.14	Nearly colorless	Faint, slight suggestion of licorice extract	Clean
2520	*Smilax (herbacea?)* L.	White Lady Slipper	Root	Med. yellowish brown	20.2	14.9	0.62	0.08	Light yellowish green		Dirty
2665	*Solanum carolinense* L.	Horsenettle	Root	Light grayish brown	9.3	1.1	1.16	0.28	Very light yellow-green	Suggestive of wild ginger	Dirty
2622	*Solanum carolinense* L.	Horsenettle	Berries	Brown	7.1	0.4	12.16	0.16	Green-yellow	Suggestive of butyric and valerianic acid	Dirty
2625	*Solanum carolinense* L.	Horsenettle	Flowers	Grayish brown	27.5	1.8	1.74	0.14	Medium green-brown	Raw	Dirty
2074	*Solanum carolinense* L.	Horsenettle	Herb (35% stems)	Brownish green	14.9	5.1	2.01	0.04	Medium dark green	Raw, offensive, somewhat dusty	Dusty
2485	*Solanum dulcamara* L.	Bittersweet	Root bark	Medium brown	12.2	5.0	11.86	1.10	Lustrous dark brownish red		Fairly clean
2053	*Solanum nigrum* L.	Nightshade	Herb	Brownish green	16.4	3.0	1.24	0.14	Medium dark green	Raw, soulish, peppery	Dusty
2567	*Solidago odora Ait.*	Sweet Goldenrod	Flowering tops	Light yellowish green	8.5	2.0	5.70	0.80	Dark green	Suggestive of anise and chamomile	Clean
1990	*Sorbus aucuparia* L.	Mountain Ash	Bark, rossed	Light reddish brown	4.1	0.2	4.98	0.26	Very light brown	Somewhat rancid, fatty	Clean
2664	*Spathyema foetida* (L.) Raf.	Skunk Cabbage	Roots & rhizomes	Medium grayish brown	6.1	2.0	1.08	0.12	Very light brown	Fatty, slightly fetid	Clean
2092	*Spigelia marylandica* L.	Pink Root	Root & rhizomes	Dark grayish brown	17.5	10.8	1.78	0.12	Light brown		Somewhat dirty
2641	*Spigelia marylandica* L.	Pink Root	Root & rhizomes	Dark grayish brown	20.3	4.4	1.26	0.08	Light brown		Clean; ash high in carbonates
2119	*Spigelia marylandica* L.	Pink Root	Root & rhizomes	Brownish gray	10.2	2.8	2.40	0.16	Very light yellow-brown		Clean
2741	*Spigelia marylandica* L.	Pink Root	Root & rhizomes	Brownish gray	13.1	7.1	2.30	0.20	Very light yellow-brown		Fairly clean
2701	*Spiraea tomentosa* L.	Hardhack	Leaves	Light greenish brown	4.2	1.1	6.64	0.12	Medium green	Sourish, faintly aromatic	Clean
2008	*Stillingia sylvatica* L.	Queen's Delight	Root	Very light grayish brown	4.5	1.7	2.58	0.24	Very light yellow	Raw, nutty	Fairly clean
2095	*Stillingia sylvatica* L.	Queen's Delight	Root	Light reddish brown	4.9	1.7	3.42	0.22	Nearly colorless	Raw, nutty	Fairly clean
2598	*Stylosanthes elatior Swartz.*	Pencil Flower (Squaw Weed)	Herb (largely stems)	Grayish green	7.2	1.0	2.12	0.14	Medium green	Faintly aromatic	Clean; large amount of stems normal
2276	*Symphytum officinale* L.	Comfrey	Root	Brownish gray	8.9	1.6	0.80	0.06	Light red		Clean
2363	*Symphytum officinale* L.	Comfrey	Root	Brownish gray	11.2	2.1	1.40	0.18	Light red		Clean
2551	*Symphytum officinale* L.	Comfrey	Root	Dark brownish gray	6.8	1.0	0.36	0.06	Light red		Clean
2376	*Tanacetum vulgare* L.	Tansy	Herb (30% stems)	Olive-green	12.2	1.4	5.57	0.72	Dark green	Characteristic	Clean

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extract. Total.	Ether extract. Volatile.	Color.	Odor.	Remarks.
2539	*Tanacetum vulgare* L.	Tansy	Herb (30% stems)	Olive-green	13.4	1.1	4.21	0.59	Medium dark green	Characteristic	Clean
2291	*Tanacetum vulgare* L.	Tansy	Herb (25% stems)	Olive-green	13.1	1.0	4.68	0.66	Medium dark green	Characteristic	Clean
2320	*Taraxacum officinalis* L.	Dandelion	Root	Grayish brown	7.3	1.1	5.50	0.07	Nearly colorless		Clean
2012	*Thuja occidentalis* L.	Arbor vitae	Leaves	Light olive-green	7.1	0.6	9.68	0.68	Dark green-brown	Pleasant, aromatic, characteristic	Clean
2579	*Tovara virginiana* (L.) Raff.	Wild Water Pepper	Herb (20% stems)	Grayish green	12.3	1.6	1.18	0.14	Dark green-brown	Peppery	Clean
2603	*Toxicodendron toxicodendron* L.	Poison Oak	Leaves	Medium green	7.5	0.5	9.98	0.30	Dark green	Raw	Clean
2271	*Toxicodendron toxicodendron* L.	Poison Oak	Leaves	Medium dark green	8.3	0.3	5.24	0.20	Dark green	Raw somewhat suggestive of raw cucumber	Clean
2300	*Trifolium pratense* L.	Red Clover	Tops	Brown	7.3	0.8	3.02	0.24	Medium brownish green	Sweet, slightly aromatic	Clean
2022	*Trifolium pratense* L.	Red Clover	Flowers with leaves	Greenish brown	7.5	0.6	3.66	0.38	Dark green	Sweet, slightly aromatic faintly acetic	Clean
2454	*Trifolium repens* L.	White Clover	Flowers	Greenish brown	11.5	3.8	2.52	0.14	Medium brownish green	Characteristic	Fairly clean
2301	*Trifolium repens* L.	White Clover	Flowers	Greenish brown	7.3	0.5	3.70	0.18	Medium brownish green	Characteristic	Clean
1992	*Trilisa odoratissima* (Walt.) Cass.	Deer Tongue (Southern Vanilla)	Herb	Brownish green	10.7	4.2	12.80	0.84	Medium greenish brown	Characteristic; very strong of coumarin	Clean
2415	*Trillium cernuum* L.	Beth Root	Root	Light grayish brown	19.2	15.7	12.96	0.94	Light brownish yellow	Fatty, rancid	Dirty
2592	*Trillium cernuum* L.	Beth Root	Root	Light grayish brown	10.2	5.4	11.50	1.04	Brownish yellow	Fatty, rancid	Clean
2088	*Trillium erectum* L.	Beth Root	Root	Light grayish brown	6.6	3.2	5.32	0.38	Light yellow	Fatty, rancid	Clean
2296	*Trillium erectum* L.	Beth Root	Root	Very light gray	2.2	0.7	7.10	0.30	Light brownish yellow	Fatty, bland	Clean
2087	*Triosteum perfoliatum* L.	Feverwort or Horse Gentian	Root	Light gray	3.6	1.2	1.36	0.12	Nearly colorless, brownish tinge		Clean
2545	*Tsuga canadensis Mich.*	Hemlock	Tree bark rossed	Light reddish brown	6.7	0.2	3.72	0.24	Bright brownish red		Clean
2636	*Typha latifolia* L.	Cat-tail Flag	Rhizome	Medium brown	6.3	0.7	0.72	0.06	Brownish yellow		Clean

1979	*Ulmus fulva Michx.*	Slippery Elm	Bark, clean rossed	Very light reddish gray	8.0	0.2	2.72	0.12	Transparent, nearly colorless	Characteristic	Clean; rather difficult to ash completely
2391	*Ulmus fulva Michx.*	Slippery Elm	Bark, rossed	Very light reddish gray	10.4	1.9	3.46	0.16	Transparent, nearly colorless	Characteristic	Clean
2562	*Ulmus fulva Michx.*	Slippery Elm	Tree bark, rossed	Very light reddish gray	11.7	0.7	1.70	0.12	Transparent, nearly colorless	Characteristic	Clean
2295	*Ulmus fulva Mixh.*	Slippery Elm	Tree bark, rossed	Very light gray	12.1	1.6	1.46	0.10	Transparent, nearly colorless	Characteristic	Clean
2617	*Urtica dioica* L.	True Nettle	Leaves	Olive-green	15.1	1.5	3.16	0.12	Very dark green	Tea-like	Clean; ash high in carbonates
2597	*Usnea barbata Fr.*	Maple Moss	Lichen	Brownish gray	2.3	0.3	5.76	0.22	Mottled yellow and greenish gray	Raw	Clean
2548	*Ustilago maydis* (D. C.) Ful.	Corn Smut	Spores large'y	Very dark brown	8.2	1.8	1.96	0.12	Light brown		Clean
2588	*Uvularia perfoliata* L.	Bellwort	Herb (45% stems)	Brownish green	9.1	0.8	5.84	0.46	Medium dark brownish green	Sour, slightly suggestive of varnish	Clean
2021	*Uvularia perfoliata* L.	Bellwort	Root	Light brown	4.9	1.2	0.52	0.04	Creamy	Sweetish, dusty	Clean
2315	*Veratrum viride Ait.*	American hellebore	Rhizome & roots	Light gray	4.2	1.0	2.14	0.06	Light grayish brown		Clean
2526	*Veratrum viride Ait*	American hellebore	Rhizome & roots	Brownish gray	7.5	2.3	1.62	0.16	Brown		Clean
2333	*Veratrum viride Ait.*	American hellebore	Rhizome & roots	Brownish gray	4.6	1.8	2.28	0.05	Light brown		Clean
2348	*Verbascum thapsus* L.	Mullein	Leaves	Brownish green	18.2	10.7	1.78	0.20	Brown-green	Somewhat suggestive of opium	Fairly clean
2674	*Verbascum thapsus* L.	Mullein	Leaves	Brownish green	39.4	29.2	1.64	0.14	Brown-green		Somewhat dirty
2307	*Verbascum thapsus* L.	Mullein	Leaves	Brownish green	15.5	6.3	2.94	0.32	Brown-green		Clean
2024	*Verbena stricta Vent.*	Blue verbena	Fruiting tops (largely stems)	Grayish brown	5.6	0.4	1.96	0.06	Medium green	Sourish	Clean; (submitted as Blue verbena (*Verbena hastata*
2637	*Verbena urticifolia* L.	White verbena	Flower tops (largely stems)	Grayish brown	14.2	0.4	3.12	0.12	Medium green-brown	Sourish	Clean; large amount of stems normal
2714	*Verbena urticifolia* L.	White verbena	Leaves	Green	12.6	3.8	2.84	0.16	Dark brown greenish	Sourish	Clean
2590	*Verbena urticifolia* L.	White verbena	Root	Grayish brown	24.0	18.9	0.96	0.08	Light greenish yellow	Sweetish, faintly aromatic	Dirty
2042	*Veronica officinalis* L.	Speedwell	Herb (35% stems)	Grayish green	7.1	1.3	3.66	0.34	Olive-green	Pleasant, somewhat suggestive of raspberries	Slightly dusty
2582	*Veronica virginica* L.	Culvers	Root	Medium green	11.4	8.0	0.94	0.04	Very light yellow	Suggestive of lemon grass	Somewhat dirty

Lab. No.	Name. Scientific.	Trade.	Part employed.	Color of powder.	Ash. Total.	Ash. Acid insoluble.	Ether extract. Total.	Ether extract. Volatile.	Color.	Odor.	Remarks.
1988	*Viburnum dentatum* L.	Mealy Tree (Arrow Wood)	Tree bark	Medium brown	6.7	1.9	3.64	0.24	Yellowish green		Clean
2497	*Viburnum nudum* L.	Shawnee Haw	Tree bark	Light medium brown	6.9	1.4	10.20	1.04	Light yellowish green	Acetic, butyric, valerianic	Clean
2432	*Viburnum nudum* L.	Shawnee Haw	Tree bark	Medium brown	5.5	0.5	12.82	0.98	Light yellowish green	Acetic, butyric, valerianic	Clean
2559	*Viburnum nudum* L.	Shawnee Haw	Root bark	Medium brown	8.8	1.1	6.22	0.60	Very light green-yellow	Butyric and valerianic	Clean
2738	*Viburnum opulus* L.	Cramp bark	Tree bark	Light brown	10.7	0.3	11.04	1.14	Olive-green	Characteristic, valerianic	Clean
2314	*Viburnum prunifolium* L.	Black Haw	Root bark	Medium brown	6.9	2.0	13.12	0.80	Very pale brown	Characteristic, valerianic	Clean
2389	*Viburnum prunifolium* L.	Black Haw	Root bark	Medium brown	7.7	3.2	14.52	0.76	Very pale brown	Characteristic, valerianic	Clean
2529	*Viburnum prunifolium* L.	Black Haw	Root bark	Medium brown	10.2	3.7	11.04	0.52	Pale yellowish	Characteristic, valerianic	Clean
2518	*Viburnum prunifolium* L.	Black Haw	Tree bark	Light medium brown	6.2	0.3	12.66	0.84	Light yellowish green	Valerianic	Clean
2098	*Viburnum prunifolium* L.	Black Haw	Tree bark	Light medium brown	7.9	0.7	8.32	0.30	Light yellowish green	Valerianic	Clean
2007	*Vinca minor* L.	Periwinkle	Root	Light brown	10.0	2.6	1.82	0.14	Light brown-green	Strongly acetic	Dusty
2584	*Viola species*	Violet	Root	Light reddish brown	6.7	0.3	0.70	0.08	Nearly colorless, greenish tinge		Clean
2298	*Xanthorrhiza apiifolia* L'Her	Yellow Root	Root	Greenish yellow	3.9	1.0	2.3	0.20			Clean
2407	*Xanthorrhiza apiifolia* L'Her	Yellow Root	Root	Greenish yellow	3.2	0.9	1.90	0.10			Clean
2550	*Xanthorrhiza apiifolia* L'Her	Yellow Root	Root	Greenish yellow	2.6	0.7	1.24	0.20	Light greenish yellow		Clean
2557	*Xanthoxalis stricta* (L.) Small	Sourgrass	Herb (largely stems)	Medium brown	12.2	9.7	2.72	0.18	Dark green	Sour	Dirty; normally consists largely of stems
2267	*Zanthoxylum clava-herculis* L.	Southern Prickly Ash	Tree bark	Light greenish brown	5.0	0.5	10.38	0.22	Yellowish brown	Suggestion of hard wood saw mill	Clean
2510	*Zanthoxylum clava-herculis* L.	Southern Prickly Ash	Tree bark	Light greenish brown	6.1	0.3	12.80	0.32	Yellowish brown	Suggestion of hard wood saw mill	Clean
2725	*Zanthoxylum clava-herculis* L.	Southern Prickly Ash	Berries	Rich brown	7.5	1.1	11.88	0.30	Dirty brown-green	Suggestive of rue and bay laurel	Clean
2508	*Zea Mays* L.	Corn Silk	Pistils	Medium brown	4.0	0.7	1.18	0.14	Light yellow		Clean

THE IDENTIFICATION OF GUMS BY THE PHENYLHYDRAZINE REACTION.*

BY C. W. BALLARD.

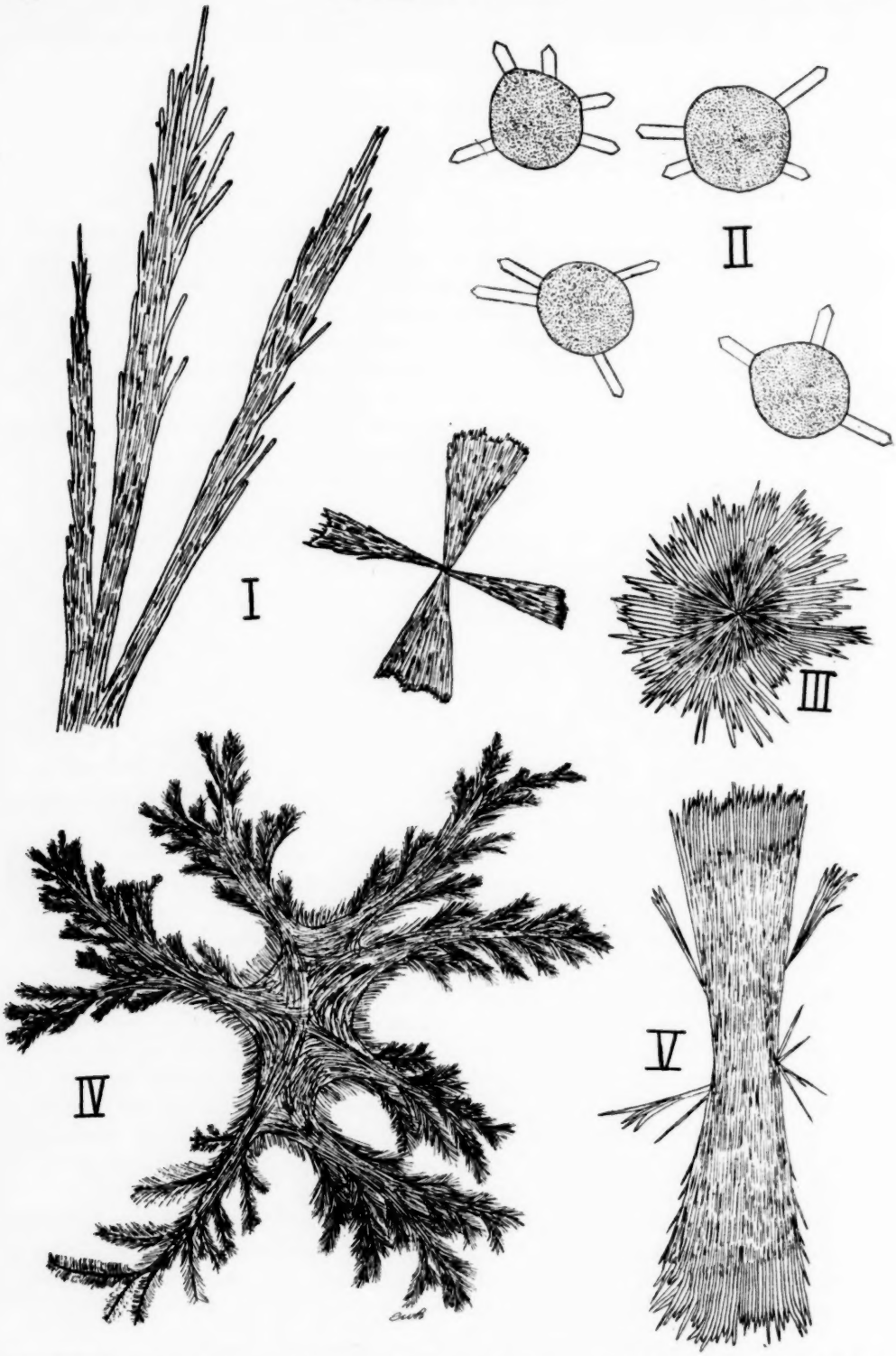
Although the phenylhydrazine test for glucose and other sugars is familiar to those engaged in urinalysis, but little mention is made of the applications of the reaction to other carbohydrates, especially those which may readily be converted into compounds containing an aldehyde radical. Experimental data at hand leads to the conclusion that the test is of value in the differentiation of gums and drugs containing gum and also that it may have practical application in glucosidal work. The field is so extensive that the present contribution is limited to a consideration of the ozazones obtainable from a few of the gums and gum containing drugs. Experimental work upon fluidextracts containing glucosides gives promise of interesting results but has not proceeded far enough as yet to justify positive statements regarding the value of this test in its application to water-soluble residues from the evaporation of these preparations.

The preliminary steps in the application of this test to gums consist of extraction or solution of the gum and inversion of the soluble carbohydrate. For extraction or solution purposes it is most convenient to start with about 5 grammes of the material to which is added 100 mils of water, the mixture being kept at gentle heat for about two hours. Water bath or hot plate set at low temperature is necessary as in some instances the solution becomes very viscid and is apt to burn if heated at too high temperature. After cooling the solution is filtered or strained, depending upon the viscosity of the product and water is added through the filter or strainer to make up the original volume. Inversion of the soluble carbohydrate in the filtrate is accomplished by the addition of 50 mils of 5 percent hydrochloric acid and 50 mils of water to the filtrate from extraction or solution. The mixture is then boiled for two hours in a flask fitted with a reflux condenser. After inversion the solution is filtered and the filtrate reserved for the test.

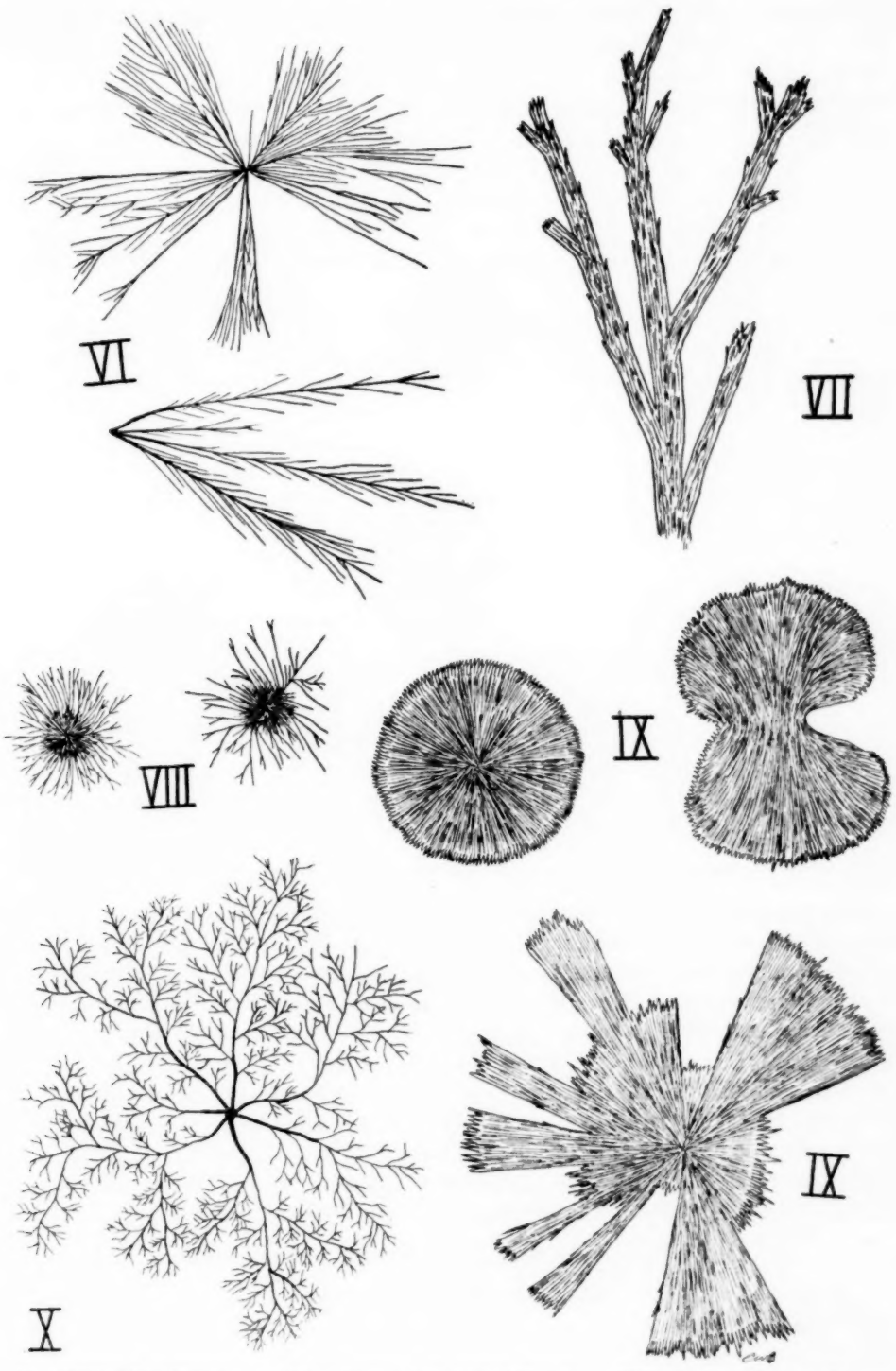
The reagent employed in these tests should be freshly prepared each day and contains phenylhydrazine hydrochloride 1 gramme, sodium acetate 3 grammes, dissolved in 25 mils of water. This solution should be filtered if not entirely clear. For the test equal parts of the filtrate containing the inverted carbohydrate and the freshly prepared phenylhydrazine solution are placed in tubes in a large beaker of boiling water and kept at boiling point for one hour, after which the tubes are allowed to cool slowly. Evidences of a crystalline deposit will often show immediately upon addition of the reagent to the solution but such crystals are imperfect and hardly characteristic. In some instances the precipitate will be voluminous but amorphous in character and it will be necessary to recrystallize. This is best accomplished by removing the precipitate by filtration, dissolving in warm alcohol, adding an equal quantity of water and removing the alcohol by heating upon a water bath.

In conducting check tests with samples of known and unknown identity it is imperative that all conditions throughout the tests be alike, as even slight differences in time or temperature will cause great changes in the character of the crystals produced. Certain gums will not yield a crystalline deposit even upon re-

*Read before Scientific Section, A. Ph. A., New York meeting, 1919.

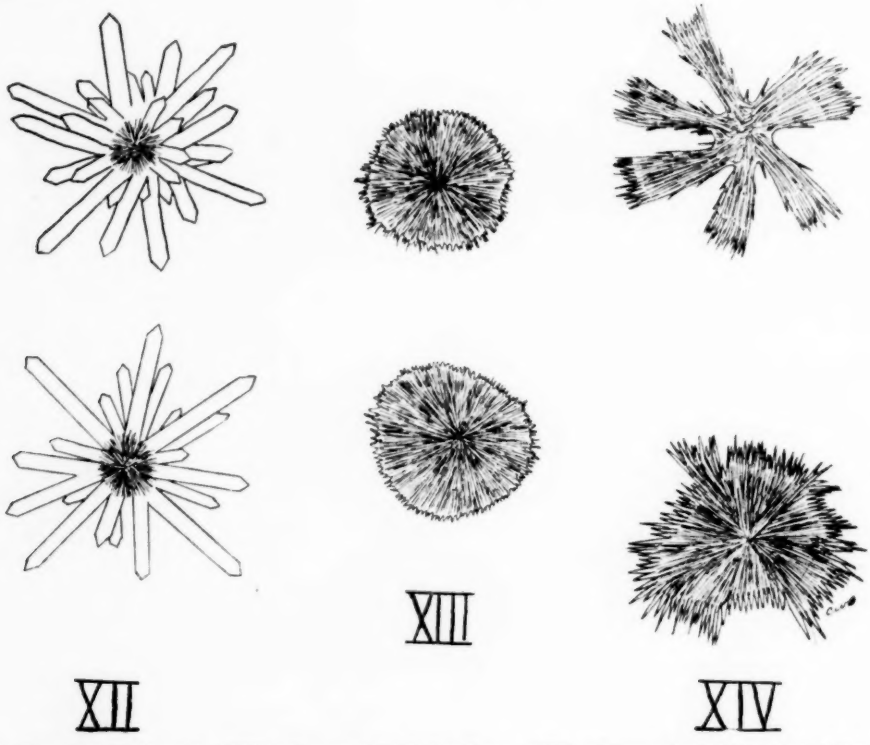


I.—Ozazone from Althaea Root. II.—Ozazone from Peach Kernels. III.—Ozazone from Brown Mustard.
IV.—Ozazone from Sassafras Pith. V.—Ozazone from Yellow Mustard.



VI.—Ozazone from Cetraria. VII.—Ozazone from Apricot Kernels. VIII.—Ozazone from Acacia.
IX.—Ozazone from Elm Bark. X.—Ozazone from Tragacanth. XI.—Ozazone from Quince Seed.

crystallization and this group may be regarded as negative to the phenylhydrazine test. The presence of glucosides with gums in a given substance undoubtedly influences the character of the crystals obtained as two types of crystals were clearly apparent in the ozazones produced from materials containing both gum and glucoside.



XII.—Ozazone from Linseed. XIII.—Ozazone from Indian Gum. XIV.—Ozazone from Bitter Almond Kernels.

In the examination of ozazone crystals an 8 mm. objective with 15 × ocular is most satisfactory as with this combination the preparation may remain uncovered and the magnification is sufficiently great to show even the finer details of crystal structure. The points to be noted in a comparison of ozazone crystals are: Total quantity of precipitate, general form or outline of crystal aggregates, apparent branching of parts of a crystal aggregate and finally the characters of the individual crystals which form the aggregate. The term "branched," as applied to these crystals, is, from the standpoint of crystallography, a misnomer, but it is a convenient expression for purposes of description. Accurate description of crystals as complex in structure as are the ozazones is rather difficult and each of the following descriptions is supplemented by an illustration.

CHARACTERS OF THE CRYSTALLINE PRECIPITATES.

Acacia.—Precipitate voluminous and orange-yellow in color. Individual crystal aggregates are small and spherical with many small branches and a few of larger size. The larger branches are slightly wavy and apparently give rise to small, secondary twigs.

Althæa.—Precipitate voluminous and reddish orange in color. Individual crystal aggregates are often very large with sheaves in form of irregular crosses or six-armed figures. Individual crystals are thin and straight.

Apricot Kernels.—Precipitate small in amount and reddish in color. Individual crystal aggregates are large and in the form of branching sheaves originating from a common center. Individual crystals are thin and straight.

Bitter Almond Kernels.—Precipitate fairly large in amount and bright yellow in color. Individual aggregates are small and in the form of irregularly outlined spheres or five to eight sheaves radiating from a common center. Individual crystals are thin and straight.

Cetraria.—Precipitate voluminous and light yellow in color. Individual aggregates are large and in the form of many rayed figures, the primary rays giving rise to comparatively few but rather large branches. The most conspicuous character is the open arrangement in the branching. Individual crystals are long, straight and thin.

Elm Bark.—Precipitate is voluminous in amount and dark red in color. Crystal aggregates are spherical or twin spheres showing a finely toothed margin with but few projections. The individual crystals arise from a common center and are rather large, thin and straight.

Linseed.—Precipitate voluminous in amount and yellow in color. Individual crystal aggregates are in the form of small spheres from which many broad rays project. The central portion of the aggregate is apparently composed of many small, thin crystals while the outer portion consists of very broad and straight forms.

Indian Gum.—Precipitate is voluminous and of dark orange color. Individual aggregates are spherical and composed of many finely set narrow crystals; a few of the latter projecting beyond the general border of the mass give the margin a ragged appearance. Individual crystals are thin, straight, and all radiate from a common center.

Mustard, brown.—Precipitate is small in amount and reddish yellow in color. Individual aggregates are spherical with very ragged border. Individual crystals are rather broad and nearly straight.

Mustard, yellow.—Precipitate is small in amount and of yellowish orange color. Individual aggregates are in the form of broad sheaves but slightly narrower in the center than at the ends and with but few side branches arising from the aggregate. Individual crystals are fairly large, broad and are nearly straight.

Peach Kernels.—Precipitate is small in amount and the crystals have dark orange centers with light yellow rays. Crystal aggregates are small and spherical with few long and broad projecting rays.

Quince Seed.—Precipitate is voluminous and reddish orange in color. Crystal aggregates are spherical and composed of long and short sheaves radiating from a common center. The edges of the aggregate are ragged. The individual crystals are thin, straight and may be long or short.

Sassafras Pith.—Precipitate is small in amount and reddish yellow in color. Crystal aggregates are large, irregular and show considerable branching. Individual crystals are small, thin and straight. The tree-like branching of this form is decidedly characteristic.

Tragacanth.—Precipitate is fairly voluminous in amount and bright yellow in color. Crystal aggregates are moderately large, irregular and with many small interlacing branches. The individual crystals are small, thin and straight.

Our present tests of identity for gums are not entirely satisfactory as in many instances more reliance is placed upon physical characters than upon chemical properties. While the phenylhydrazine reaction fails to give positive results with all gums it is certain enough to be regarded as another link in the chain of confirmatory tests which might be used to establish the identity of an unknown sample.

SCHOOL OF PHARMACY,
COLUMBIA UNIVERSITY.

OIL OF SANDALWOOD AND ITS ADULTERATION.*

BY AZOR THURSTON.

"A volatile oil distilled from the wood of *Santalum album* Linne (Fam. *Santalaceae*), yielding not less than 90 percent of alcohols, calculated as santalol ($C_{15}H_{26}O$ = 222.21)." U. S. P.

The constants for sandalwood oil are as follows:

Specific gravity at 25° C.	0.965 to 0.980	U. S. P.
Refractive index at 25° C.	1.498 to 1.508	B. P.
Optical rotation in 100 mm. tube at 25° C.	—15° to —20°	U. S. P.
Santalol not less than	90%	U. S. P.
Soluble in 5 volumes 70% alcohol		U. S. P.

The so-called West India sandalwood oil, cedarwood oil, terpineol, chloroform, castor oil and cottonseed oil are used as adulterants for sandalwood oil. Castor oil and cottonseed oil will decrease the optical rotation and reduce its solubility in 70 percent alcohol; cedarwood oil will increase and West India sandalwood oil will decrease its rotation to the left. Any of these adulterants would reduce the percentage of santalol.

The writer has examined a number of samples of commercial sandalwood oil and the results of analysis are as follows:

No.	Sp. gr.	Ref. ind. at 20°C.	Optical rotation at 25°C.	Santalol.	Remarks.
1	0.9687	1.5061	....	92.28	U. S. P. Standard.
2	0.9718	1.5081	—13.3°	88.80	Sol. in 5 vol. 70% alcohol. Below standard in santalol and optical rotation.
†3	0.9757	1.5081	—13.3°	92.9	Sol. in 5 vol. 70% alcohol. Below standard in optical rotation.
†4	0.9666	1.5033	—11.87°	93.7	Insol. in 5 vol. 70% alcohol. Below standard in optical rotation.

* Read before Scientific Section, A. Ph. A., New York meeting, 1919.

† From Capsules

The following formula is used in calculating the santalol:

$$\text{Percentage of santalol} = \frac{A \times 11.11}{B - (A \times 0.021)}$$

In which A is the result obtained by subtracting the number of mils of half-normal sulphuric acid V. S. required in the titration from the number of mils of half-normal alcoholic potassium hydroxide V. S. originally taken, and B is the weight of acetylized oil taken.

No.	Sp. gr.	Ref. ind. at 20°C.	Optical rotation at 25°C.	Santalol.	Remarks.
5.....	0.9426	....	—7.15°	80.18	Below standard in santalol and polarization.
6.....	0.9594	....	—13.45°	84.48	Below standard.
7.....	0.9398	....	—13.6°	67.87	Below standard.
8.....	0.9601	....	—19.58°	70.08	Below standard.
9.....	0.9659	....	—21.0°	76.79	Deficient in santalol.
10.....	0.9725	....	—15.65°	94.07	U. S. P. Standard.
11.....	0.9438	....	—6.25°	96.77	Contained cottonseed oil.
12.....	0.9478	....	—30.17°	41.51	Probably mostly cedarwood oil.
13.....	0.9612	....	—13.44°	84.71	Below standard.
14.....	0.9712	1.5084	—12.33°	93.77	Below standard in optical rotation.
15.....	0.9564	....	—12.69°	80.67	Below standard and insoluble in 5 vol. of 70% alcohol.
16.....	0.9650	....	—17.63°	73.23	Below standard. Not sol. in 5 vol. 70% alcohol.
17.....	0.9644	....	—13.53°	88.52	Below standard. Insol. in 5 vol. 70% alcohol.
18.....	0.9635	1.5082	—16.33°	74.99	Insol. in 5 parts 70% alcohol. Below standard in santalol.
19.....	0.9630	1.4960	—15.20°	91.13	Soluble in 5 parts 70% alcohol. U. S. P. Standard.
20.....	0.9728	1.4952	—16.38°	91.17	Soluble in 5 parts 70% alcohol. U. S. P. Standard.

The fact must not be overlooked that fixed oils when added to sandalwood oil apparently increase the percentage of santalol when the United States Pharmacopoeial method of acetylation and saponification is employed and the calculation of santalol is based upon the formula given above.* This would be equally true with other volatile oils when determining higher alcohols by above method.

The writer employed this method on pure cottonseed oil and used the formula for calculation of santalol and it gave results indicating 96.93 percent santalol.

The absence of fixed oils must be ascertained before the estimation of santalol becomes of any analytical value in determining the purity of the oil under consideration.

Oil of *Santalum album* is properly sold as East India Sandalwood Oil, or simply sandalwood oil. The custom of labeling the oil of *Amyris balsamifera*, "Oil Sandalwood, W. I.," is, according to the Federal Opinion Number 29, misleading, in that confusion with true oil of sandalwood, which is official in the United States Pharmacopoeia, may easily result.

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THE REFRACTIVE INDEX AND OPTICAL ROTATION OF COMMERCIAL VOLATILE OILS.*

BY AZOR THURSTON.

Having had occasion to examine a number of essential oils, the writer has compiled the results of the determinations of the refractive indices of same. They were commercial oils, but pure, so far as could be determined by a partial examination. Care was taken to make the reading of the refractive index at exactly 20° C. It should be understood that slight variations should be expected in the refractive index of different samples of an oil.

The optical rotation of a number of the oils tabulated was determined by the author, but some were compiled from the United States Pharmacopoeia and other reliable sources and have no reference to the particular sample examined—they simply show what the optical rotation of the oil should be.

Oil.	Refractive index at 20° C.	Optical rotation in 100 mm. tube at 25° C.
Allspice (Berries)	1.4975	0° to —4°
Bay	1.4937	—3°
Bergamot	1.4710	+15.3°
Anise	1.4684	+1° to —2°
Cade	1.5037	.....
Cajuput	1.4711	—4° (does not exceed)
Camphor	1.4685	+16.5°
Caraway (Dutch Seed)	1.4884	+70° to +80°
Cassia	1.6073	+1° to —1°
Cedar Leaf	1.4677	+59° 25′
Cedarwood	1.4984	—25° to —40°
Citronella	1.4857	—5° to —21°
Cloves	1.5351	—1° 10′ (does not exceed)
Cloves (Eugenol)	1.4697	Optically inactive
Cubebs	1.4986	—20° to —40°
Erigeron	1.4903	+45° to +55.3°
Eucalyptus	1.4624	—10° to +10°
Eucalyptus (Eucalyptol)	1.4601	Optically inactive
Gingergrass	1.4933	—2° 8′
Hemlock	1.4710	—20° 54′ to —23° 55′
Lavender (Garden)	1.4731	—1° to —10°
Lavender (Technical)	1.4668	.....
Lemon	1.4779	+57° to +64°
Lemongrass	1.4913	+3° to —3°
Mace	1.4832	+10° to +20°

*Read before Scientific Section A. Ph. A., New York meeting, 1919.

Oil.	Refractive index at 20° C.	Optical rotation in 100 mm. tube at 25° C.
Nutmeg	1.4837	+12° to +30°
Origanum	1.4841	—15° 36′
Pennyroyal	1.4821	+18° to +22°
Peppermint	1.4636	—23° to —33°
Pine Needles (Siberian)	1.4729	—4.5° to —9°
Sandalwood	1.5061	—15° to —20°
Sassafras (Artificial)	1.5273	.....
Sassafras (Natural)	1.5299	+3° to +4°
Sassafras (Safrol)	1.4684	.....
Spearmint	1.4894	—38° to —55°
Spruce	1.4706	—29.27°
Thyme (Red)	1.4925	Slightly levorotatory
Thyme (White)	1.4903	Slightly levorotatory
Wintergreen (Methyl salicylate)	1.5379	.....
Wintergreen (Birch)	1.4971	.....
Wintergreen (Natural)	1.5029	—1.5° (not exceeding)
Wormwood	1.4741	.....

In the determination of adulterations in essential oils the refractive index or the optical rotation, alone, might not be of much value, but taken together with other constants they are often of prime importance.

THE CHLORAMINES:* THEIR PREPARATION AND USES.

BY ISAAC F. HARRIS.

The war in Europe has developed a vast number of new antiseptics and disinfectants during the last few years.

Pressure has been brought to bear upon the chemical profession to create and produce active, efficient, powerful, non-irritating, non-toxic and economical germicides particularly adapted to the sterilization of infected wounds.

To combat the multitudinous infection of war wounds there have arisen:

Antiseptic dyes (malachite green and acriflavine), eupad, eusol, compounds of mercury, silver, iodine, bromine, and, lastly. Dakin's solution and the chloramines.

These latter are the special subject of our consideration here.

In the same manner that the war has forced the development of our industrial life, it has, likewise, stimulated pharmaceutical and chemical growth, especially in their applications to clinical medicine and surgery.

When our war surgeons faced a rampant infection upon a scale hitherto unknown to mankind, they appealed to the chemists to solve this problem.

All of the older and well-known antiseptics failed, in some quality, to fulfil the demands. Salts of mercury were too toxic, phenol was inadequate, compounds and salts of silver were too expensive and too toxic to tissue, formaldehyde was too irritating, while tincture of iodine—anything in alcoholic solution—was too expensive and irritating.

Thus, one by one, they were abandoned.

What was the problem?

*Read before Scientific Section A. Ph. A., New York meeting, 1919.

There was a crying demand for a *water-soluble* disinfectant which could be employed freely as an irrigant for deep wounds.

It must be non-irritating, non-toxic to body tissues, effective in its germicidal properties, economical, available and safe.

Dakin and Carrell solved it at Base Hospital No. 21, Compiegne, France, working under the joint auspices of the French Army and the Rockfeller Institute of New York.

The products are now well-known as Dakin's solution (neutral sodium hypochlorite solution) and the chloramine derivatives of toluene (chloramine-T and dichloramine-T).

All of these depend upon the same principle, namely, the chemical power of chlorine to destroy living organic matter.

In Dakin's solution we have an application of "available chlorine" in an aqueous solution, under precise and standardized conditions.

It has been spoken of as a "glorified" bleaching powder, "refined" and adapted to surgery.

It is standardized to contain 0.46 to 0.50 percent sodium hypochlorite, and to have an exact chemical neutrality, as indicated by phenolphthalein, in strong alcoholic solution.

The great value of Dakin's solution in the treatment of infected wounds is two-fold:

First: The disinfectant value of its "available chlorine."

Second: The *solvent power* upon necrotic tissue, due to the formation of sodium hydroxide as part of its decomposition in the presence of protein matter.

The former accomplishes its extensive and elaborate effects through the preparatory action of the caustic soda, which makes *contact* with the micro-organisms possible.

On the other hand, the action of the *caustic* ("solvent") is limited by the amount of chlorine in the solution and by the amount of necrotic tissue present which causes the double decomposition.

This is an automatic, self-regulating system which is beautiful, both in theory and adaptation.

But, what are the *limitations* of Dakin's solution?

It is unstable in character, transient in value, very intricate in preparation, elaborate in its application and serviceable only in certain types of infection.

The preparation of a precise solution of sodium hypochlorite of exact neutrality, and containing chlorine within the limits prescribed by Dr. Dakin, requires a first-class chemical equipment and the services of one experienced and skilled in this particular work.

Let us face this chemical problem squarely!

The specifications allow a variation of 0.01 percent chlorine only.

If this solution is too high in its content of sodium hypochlorite, it is dangerous in its effect upon tissue.

If too low in strength, it is of less value than described.

Again, adjusting such a solution to an exact neutrality—in an unionized solution—is a test of a high order.

An alkaline Dakin's solution is irritating and hazardous in effect. An acid

hypochlorite does not exist. Experience has shown that such specifications are not carried out in general practice.

The authors recognized this and created chloramine-T and dichloramine-T to make solutions of "available chlorine" more exact in composition and more lasting in effect.

Chloramine-T is a white, crystalline powder, quickly soluble in water to form a clear solution.

It is stable—both in powder and in solution—is non-irritating, non-toxic and highly germicidal.

A 2 percent solution of chloramine-T contains *0.25 percent "available chlorine"* and is chemically neutral.

Dakin's solution, under *optimum and maximum* conditions, contains *0.23 percent "available chlorine."*

The former will keep indefinitely while the latter is suitable for use only for a few days.

A 2 percent solution of chloramine-T is available to everyone, everywhere and requires no skill in preparation.

The advantages to the medical profession of such a portable compound are obvious.

Likewise, it offers to the pharmaceutical profession and dispensing druggists a *safe method* of dealing with the physician and institution.

While a 2 percent solution of chloramine-T will accomplish all that Dakin's solution will and can be employed in the same cases by the same technique, yet it offers the further advantage of application in greater strength or greater dilution, as the profession may require.

The specifications for purity of this compound are that it shall be para-toluene-sodium sulphochloramide, white, crystalline in form, completely soluble in water, and shall contain 12.6 percent of "available chlorine."

Another application of chloramine-T by Dr. Carrel was in the form of a *surgical paste* for dressing of sterile or moderately infected wounds.

This was devised by Dr. Maurice Daufresne and consists of a surgical paste of the "vanishing cream" type, compounded with neutral sodium stearate, carrying 1 percent of the disinfectant, chloramine-T.

While these are the essential features and factors of Dr. Daufresne's wound dressing cream, as employed by Dr. Carrel, it is of the highest importance to prepare it strictly in accord with the advices of the authors. The fineness of subdivision of the particles of insoluble soap control the distribution of the antiseptic, while the high purity of the fatty acid and strict chemical neutrality of the resulting sodium soap—in unionized solution—all contribute toward the permanence of the preparation and to its clinical effects.

When properly prepared and packed in suitable, air-tight, containers, this preparation keeps indefinitely.

Chloramine-T surgical paste is safe in the hands of the dispensing chemist, provided these precautions are strictly adhered to. This description furnishes the essential specifications for its purity.

Much confusion has arisen in the minds of the profession through the variety of chlorinated compounds which have been proposed for disinfectant purposes.

The reason for this has been an attempt to satisfy a variety of demands. The physician must have a choice of disinfectant agents, just as he has a choice in selection of his anesthetic.

Dakin's solution is a vigorous, radical disinfectant.

Chloramine-T is milder in its action, though stable and uniform.

To supply further requirements, *dichloramine-T* and its oil-solvent, *chlorcosane*, were evolved.

Since dichloramine-T contains two chlorine atoms instead of one (as in chloramine-T) it not only carries more chlorine (29.5 percent) but this latter element is less firmly fixed in the molecule.

The result is that it gives it up more readily when in contact with dead organic matter, and is less stable in character.

Dichloramine-T is insoluble in water, which is one of the features intended in its selection.

A *specially-prepared*, "chlorinated" oil (chlorcosane) has been created by Drs. Dakin and Dunham as a bland, neutral carrier of this disinfectant.

Dichloramine-T is always applied to infected areas in chlorcosane solution, which delays the reaction between the aqueous tissues and the disinfectant, thereby prolonging the action of the latter.

This feature of dichloramine-T-oil dressing of wounds is important from the standpoint of renewal of dressings.

Another wide use of the dichloramine-T-oil dressing has been developed at the Pennsylvania Hospital and elsewhere; upon *extensive burns*, where this dressing relieves pain, the disinfectant prevents infection and the dressings are readily removed.

The specifications for the purity of dichloramine-T are that it shall be toluene-para-sulphondichloramine, yellow-white, crystalline or amorphous powder. Its melting point is 80° C, and it should dissolve readily in chloroform or chlorcosane. It should be kept from direct, prolonged sunlight, moisture, organic matter and metals.

In dispensing dichloramine-T from larger containers, unless all these precautions are observed, a decomposition will be set up which will continue, until the whole mass is badly decomposed, with liberation of chlorine, leaving the amide, which is insoluble in chlorcosane.

The selection of a solvent for dichloramine-T has been a problem.

Though it will dissolve in certain other oil solvents, the fact that it has a decomposing action upon the solvents, themselves, must be noted.

Hence *chlorcosane* originated.

When white paraffin wax is melted and treated, white hot, with chlorine gas, it will absorb and combine with the latter to form chlorine derivatives which are very stable. When the paraffin has been thus vigorously treated with chlorine, its affinity or avidity for this halogen is so satisfied that it has very slight decomposing effect upon the dichloramine-T.

Although various oil solvents for dichloramine-T have been suggested—and used to some extent—there is only one which has satisfied the tests and requirements of the Army, the Navy, Red Cross and general practice; that is *chlorcosane*.

It is, furthermore, important to remember that though chlorcosane contains approximately one-third of its weight of chlorine, yet it *has no antiseptic power*, in itself, since this chlorine is combined with the carbon of the molecule and is inactive, stable, *firmly fixed* as in sodium chloride.

The specifications for chlorcosane are that it shall be chlorinated paraffin; a golden yellow, lustrous oil, of sp. gr. about 1.06 (slowly sinks in water at 20° C), tasteless, bland, odorless, neutral and a solvent for dichloramine-T, up to 8 to 10 percent.

In summary, the derivatives of chlorine all have their place. Their very nature demands that they be prepared in condition of high purity, transported and dispensed with precautions, and that the ultimate consumer shall understand their properties.

Many confident pharmacists have attempted to make Dakin's solution by new and self-improved methods. They have combined the chloramines with wool fat, petrolatum, liquid petrolatum, and other soaps than that prescribed by Daufresne. These experiments are futile. Let's adhere strictly to the fundamental requirements of the authors.

The chloramines have found their place in surgery and are now establishing themselves in the institution and household as the best, most highly germicidal and safe disinfectants for general use in combating infection, to-day.

RESEARCH LABORATORIES,
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NEW YORK.

ABSTRACT OF DISCUSSION.

MR. LOWENSTEIN: There are a few points brought out by the speaker in reading this paper with which I don't agree. I would like to have them cleared up if possible. First of all, is he justified in making the statement that it is very difficult to prepare the Dakin's solution so that it is perfectly neutral? My experience has shown that it is the easiest thing in the world, and that anybody with any training can do it. Secondly, the author forgets to mention the fact that Dakin's solution has a property of dissolving necrotic tissue, and this was considered one of its most important properties, while chloramine–T, as far as I know, has not that property; and that is why Dakin's solution is to be preferred to any one of these products. Finally, the objection to Dakin's solution was raised that it is unstable. I wonder whether the author is familiar with Cullen's paper published recently, where he goes into the method of preparing it, and finds it to be perfectly stable; that Dakin's solution is easily prepared, and much more stable than stated, and it is cheaper than the chloramines.

MR. HARRIS: I will not agree that Dakin's solution is superior to all the others on account of its solvent power upon necrotic tissue. I will agree that this solvent power does not exist in the same degree in the other products; the disinfecting power of the other products, however, is greater. This solvent power of the Dakin's solution upon necrotic tissue is admitted. It has solvent power upon wounds; that is well known; and it causes hemorrhages, sometimes. Dakin's solution is a wonderful product, but is not always available. The man in the little town in Kansas or Missouri, and other states of the country, cannot get Dakin's solution, and he cannot make it properly. The chloramines were designed, to a certain extent, to reach the fellow in the part of the country where you cannot get Dakin's solution. Probably you are in a position to get Dakin's solution, properly made, but I know from two or three years' experience, traveling all over the country, that the average man never gets a neutral, fully potent solution of sodium hypochlorite, as prescribed by Dakin. I traveled over the country from coast to coast, calling on large and small pharmacies, in the small towns and in the hospitals, and am convinced that the situation is as described. A very small percentage of the chemists and

practicing pharmacists are able to make it properly. It is not a question of education or mentality, or anything else of that nature; it is a matter of equipment and time. A physician in a small town sends in a prescription for Dakin's solution occasionally, and the pharmacist has not the time nor the equipment to make it right, yet he tries. I can tell you of an able pharmacist, up in New Haven, Conn., one of the best men in the town, who has been dispensing Dakin's solution combined with wool fat and other ingredients incompatible with it. And the doctors get it. This is worse than useless. It is prepared in other places in a similar manner, and such practice is damaging to the success of the great work that Dr. Carrel of the Rockefeller Institute is carrying on. My point is this—that in many parts of the country Dakin's solution cannot be properly made so that the patient suffering from infected wounds can get the benefit of it. Recognizing this situation, physicians are applying some of the more stable and more easily obtained chloramine products. You spoke of the paper written by Dr. Glenn E. Cullen, of the Rockefeller Institute, published in the *Journal of Biological Chemistry*, May 1919. You spoke of his stabilizing sodium hypochlorite solution. It is impossible. I talked it over with him for hours. He cannot make it stable. He has made it a little more stable. They cannot make it stable like chloramine-T. This is one of the advantages of the latter.

MR. HAMILTON: Of course the question of its stability is an important one. But for the purpose of making a Dakin's solution that is a fairly stable compound there are a number of preparations on the market of sodium hypochlorite that are dispensed under other names, containing something like 4 percent of available chlorine. These solutions are made in such a way that they are fairly stable. When the gentleman says that it is impossible to make them stable, that word "stable" ought to be defined, because stability is a question of days or months or years. You do not expect a hypochlorite solution to be stable for years. I have known of some of these solutions that have proved to be stable for a very considerable period of time. I cannot, for the moment, say offhand. I want to ask one or two questions: On the table up there, are there any data on the germicidal value of the solution containing 0.25 percent of chlorine? Also, in the case of this solution of 2 percent chloramine-T, what is the active agent? As I understand it, in Dakin's solution of hypochlorite, oxygen is the disinfecting agent. Is that true in the case of chloramine-T? The speaker referred rather slightingly to mercury because of its being put in the class of a poison. I don't know, but as I understand it, in almost every case the action is that of the protoplasmic poison, and it makes no difference whether it is chlorine, oxygen, mercury, or whatever it may be.

MR. CLARK: From my investigations I believe that the greatest source of trouble in making Dakin's solution has been due to the lack of explicit directions.

MR. MURRAY: The use of chlorinated solutions of various kinds has extended to a considerable number of products, many of which are familiar to you gentlemen present. Some of them are manufactured in this country, and we have the promise that the manufacturers will shortly undertake the making of others.

MR. KEBLER: I would like to inquire whether the gentleman believes that we have had sufficient experience in the use of these products at this time to be certain of their practicability? We have had several new things introduced to us within recent years for which much was claimed, but after experience with them for two or three years we found out that they did not make good; at least they did not make good to the extent claimed for them. I would like to ask the gentleman whether he knows that these goods have been tested to the extent that they will make good or have made good?

MR. HARRIS: You spoke of your own experience in making Dakin's solution, and you state that it is stable. The question of stability, however, is a matter of whether you mean one year, or six months, or what period of time you require it to be stable. I understand that there are on the market, at the present time, various sodium hypochlorite solutions containing about 4 percent available chlorine, which can be diluted down to the required amount of chlorine for Dakin's solution, and then shaken up with boric acid, or with sodium bicarbonate to neutralize it, and thus make an approximate Dakin's solution. That is one of the ways of making Dakin's solution. It is quite all right, but requires an accurate chemical analysis at frequent intervals. Furthermore, the chemical *reaction* must be adjusted with great precision. And, I maintain that testing for neutrality of such an un-ionized solution as sodium hypochlorite, with phenolphthalein, in alcohol, is a test of a high order and requires familiarity with such reactions and

chemical adjustments. On the other hand, when one makes up a 2 percent solution of chloramine-T, it is *neutral* and ready for immediate use, without chemical adjustment. The disinfectant power of Dakin's solution is two-fold: You start with a neutral solution, but when this sodium hypochlorite comes in contact with dead pus cells, blood clots, and such organic matter, the "reactive chlorine" combines with such matter, setting free molecules of hydrogen, which combine with the sodium to form sodium hydroxide in an amount equivalent to the molecules of chlorine used up by the necrotic cells. This automatic formation of caustic soda from neutral Dakin's solution is responsible for the solvent power of this disinfectant. In answer to this second question upon the bactericidal value of this solution (2 percent chloramine-T) mentioned on the chart, it is hard to answer, since its bactericidal value depends upon what is in the solution. It is impracticable to make a general statement concerning it. It depends upon the culture, the bacteria; also upon whether you have a certain amount of tissue to deal with, either blood clots or some other form of tissue that is being treated, which will tend to "use up" the disinfectant. You will find a number of bactericidal tests of the chloramines given in the handbook by Dakin and Dunham. One statement that they make is that a solution of chloramine T, 1 to 1,000,000, will sterilize a suspension of streptococci in water.

MR. BERRY: Mr. Harris has been asked concerning chloramine-T, if he knew whether an absolutely neutral solution is stable. Some manufacturers in making chloramine-T will not make it without having at least four-tenths of 1 percent alkalinity to preserve it. They found that did it best, and in my laboratory I have tried some eight or ten samples. I found that those which were absolutely neutral did decompose in three or four months, very slightly. That is because of the alkalinity not being of the satisfactory strength, to just over the point where it would keep.

MR. WRIGHT: I had some experience several years ago in making Dakin's solution. As I understand it, Dakin's solution is simply a modification of Labarraque's solution which was in the National Formulary. Inasmuch as we have come to learn so much of the value of Dakin's solution, and know its wonderful effects in the war, I make the suggestion that Dakin's solution be included in the National Formulary, with proper directions for preparation. I think that it will be very well for this Section to make the recommendation that it be included in the Pharmacopoeia.

THE CHAIRMAN: Do you make that in the form of a motion?

MR. WRIGHT: Yes.

THE CHAIRMAN: Is there any second to the motion?

MR. COOK: I second that motion, if you will limit it to the N. F. (The motion was put to vote and carried unanimously.)

MR. KEBLER: I would like to ask this question; I want to know whether under these circumstances related concerning this product, that it has been put out on the market, whether it has been out a sufficiently long time to warrant the claims that are made for it.

MR. HARRIS: My answer is, that it does keep. It is neutral. Chloramine-T is a very well-known substance and was used during the war. It was not discovered during the war; it was discovered long before the war. It is a very well-known chemical compound, and is stable. You referred to the keeping of the chloramine solution. You did not find that it kept? Let me tell you what I think happened in your case; your solution did not keep because it was not pure, perhaps. It will not keep unless it is pure. That is true. If they are impure, the chances are that they will keep better if they are alkaline. It is a stable compound. You know the chemistry of it. Kissel was one of the authors referred to by Dakin and Dunham, who described it in 1895. They described it, and endorsed it as a perfectly stable compound. A great deal depends upon how it is handled. If you have cork stoppers, if you don't use distilled water, if your bottles are not thoroughly cleaned—all those things influence the quality of the product. If you use pipe water, or bad distilled water, especially if it is overcharged with acid salts, you will get a decomposition and it will increase. But the chemical compound itself is considered a perfectly stable substance, just like mercuric bichloride. When we speak of dichloramine-T, we qualify it. That is not so stable. We have to describe it with some qualifications.

LABORATORY NOTES.*

BY GEORGE E. ÉWE.

A SODIUM HYPOCHLORITE SOLUTION STABILIZED BY NON-CAUSTIC ALKALI.

Neutral sodium hypochlorite solutions of about 0.5 percent NaOCl strength have proven very effective for the sterilization of wounds. But neutral sodium hypochlorite solutions are notoriously unstable, and as a consequence, must be freshly prepared. The labor of keeping available a supply of this solution of full strength would therefore be materially lessened if a stable or nearly stable product could be devised. Because of the bulkiness of this solution when of proper strength for application, it would be desirable for convenience in handling and storing to devise a product which, in addition to being stable or nearly stable, would be in a concentrated form permitting dilution just before use.

Sodium hypochlorite solution can be fairly well stabilized by insuring the presence of sufficient alkali. But this alkali must be of a non-caustic nature, so as not to cause irritation of the tissues upon which the solution is used. Lime, in proper proportion is an effective, non-caustic alkaline stabilizer for sodium hypochlorite solution.

Sodium hypochlorite solutions for wound irrigation can be prepared by reaction between chlorine and sodium hydroxide; chlorine and sodium carbonate; chlorine and a mixture of sodium carbonate and bicarbonate; chlorinated lime and sodium carbonate; chlorinated lime and a mixture of sodium carbonate and bicarbonate; etc. The most commonly employed methods are reaction between chlorinated lime and sodium carbonate and chlorinated lime and a mixture of sodium carbonate and bicarbonate. Of these two methods, it is probable that the last one is the most popular. The method outlined below of preparing a sodium hypochlorite solution stabilized by lime is applicable to all of the methods mentioned above, with the exception of that in which chlorine and sodium hydroxide is employed. Since the reaction between chlorinated lime and a mixture of sodium carbonate and bicarbonate is probably the most commonly employed one, only the product of this reaction will be considered in giving the details of the method of preparation of a sodium hypochlorite solution stabilized by non-caustic alkali.

The details of the method are as follows:

Sodium hypochlorite solution is prepared by reaction between chlorinated lime and a mixture of sodium carbonate and bicarbonate, then sufficient commercial calcium chloride is added to insure the presence of soluble calcium salt in the solution, which, at the same time deprives the solution of all carbonate. Instead of commercial calcium chloride, a sufficient quantity of a neutral or alkaline solution of calcium chloride made by dissolving in hydrochloric acid the precipitate of calcium carbonate and bicarbonate obtained in the manufacture of a lot of the solution, can be employed for elimination of carbonate. Sufficient dry slaked lime is now added by stirring until a filtered portion of the solution yields a precipitate when the breath is blown through it by means of a glass tube, indicating saturation with lime in the hydroxide state.

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* Read before Scientific Section, A. Ph. A., New York meeting, 1919.

It is not permissible to eliminate the treatment with calcium chloride and simply saturate the solution with lime for the reason that sodium hydroxide would be formed by reaction between the sodium carbonate and lime and thus result in a more irritating form of alkali than the carbonate originally present.

A formula taking advantage of these details would read as follows:

Chlorinated Lime ($32^1/_2$% available Cl)	100 Gm.
Water	127 Cc.
Sodium Carbonate, monohydrated	40 Gm.
Sodium Bicarbonate	41 Gm.
Water	379 Cc.
Calcium Chloride (Com'l) about	10 Gm.
Dry Slaked Lime, about	5 Gm.
Yield about	240 Cc.

Manufacturing Instructions.—Place the chlorinated lime in a jar with 127 Cc. water, agitate well and let stand tightly covered for 6–12 hours. Dissolve the Sodium Carbonate and Sodium Bicarbonate in 379 Cc. water and pour into the chlorinated lime mixture with constant stirring. Stir until the gelatinous mass which first forms is broken up and changes to a powdery precipitate. Let settle. Syphon off and strain roughly into dark glass bottles. Add the calcium chloride to the strained solution and stir for 10 minutes. Then immediately add the dry slaked lime and stir until a filtered portion yields a copious precipitate when the breath is blown through it by means of a glass tube. Filter into dark glass bottles, keeping tightly stoppered and in a cool dark place.

In order to save one filtration the calcium chloride and lime can be added before the solution is filtered from the original magma but this procedure results in the use of about 50 percent more calcium chloride because more carbonate is present due to the magma holding some of the solution.

Chlorinated lime of any other strength than $32^1/_2$ percent available Cl can be employed in proper proportion.

This formula will yield a solution assaying between 4 and 6 percent NaOCl and therefore is about 10 times the concentration required for use.

Five lots of concentrated solution were prepared by this formula from five different lots of chlorinated lime and were filed away in amber glass bottles closed with rubber stoppers and assayed periodically in order to determine their stability.

The following table shows the results of these tests:

Solution.	First assay.	Final assay.	Time between 1st and final assay.	Loss of total NaOCl per month.
1	4.49% NaOCl	4.38% NaOCl	6 months	0.5%
2	4.51% NaOCl	4.51% NaOCl	6 months	None
3	4.36% NaOCl	3.69% NaOCl	5 months	3%
4	4.02% NaOCl	3.91% NaOCl	1 month	3%
5	4.18% NaOCl	4.18% NaOCl	1 month	None

—Reported by George E. Ewe.

DETERMINATION OF PHENOL COEFFICIENT OF SUBSTANCES IMMISCIBLE WITH WATER OR CULTURE MEDIA.*

In the determination of the phenol coefficient of substances it is quite essential

* Acknowledgment is due to Mr. Peter Masucci and Mr. R. J. Monson, both of the H. K. Mulford Co. Biological Laboratories at Glenolden, Pa. for their kindness in performing the laboratory work connected with the development of this article; to Mr. Masucci for preparing the samples for bacteriological tests and to Mr. Monson for conducting the tests.

that the substance undergoing test be miscible with water or with the culture medium used in the test. This is essential because of the comparatively small sample employed and the necessity that it be brought into intimate contact with the organisms in the culture medium in order to insure that accurate results be obtained.

Very variable results attend the attempt to obtain the phenol coefficient of an oily substance by simply adding the sample directly to the culture medium. The difficulty lies in the inability to perfectly mix the sample with the medium.

Constant phenol coefficients instead of the usual discouraging variable results can be obtained by preparing the oily sample into a homogeneous emulsion by the following means:

Place the oily substance in a mortar and to each Cc. of it add 1 Gm. of powdered Acacia. Triturate together until a homogeneous mass results. Add water in small volumes, triturating after each addition, so as to maintain a homogeneous mixture. Finally wash the contents of the mortar into a volumetric flask and bring up to the required volume. The following proportions have proven convenient:

Oily substance	1 part
Gum Acacia	1 part
Water, qs	10 parts

The emulsion produced is stable and may be diluted with water to almost any degree without losing its homogeneity.

The above method of preparing samples is effective with practically all oily substances but the following modification has proven more satisfactory in a few cases:

Triturate one part of powdered acacia and one part of water in a mortar until a perfect mucilage results. Incorporate one part of the oily substance, then add water in small portions, triturating after each addition. Wash the contents of the mortar into a volumetric flask and bring up to 10 parts with water.

The accuracy of this method was tested on mixtures of purified cresols of known coefficient and it was found to yield results which agreed very closely with those given by the Hygienic Laboratory method.

This method was frequently employed during the past year in testing boring oils, refrigerants and other lubricating oils employed in the tool cutting industries. Some of these contained beta-naphthol, others paraformaldehyde and others cresylic acids and other phenolic substances.

The following table shows a few of the kinds of oils containing germicidal substances with which this method was effective:

Oil.	Germicide.	Phenol coefficient.
Sulphurized Lard Oil	1% Beta-Naphthol	4.89
Sulphurized Lard Oil	2% Paraform	9.68
Hydrocarbon Lubricating Oil	6% Cresylic Acid	0.07
Hydrocarbon Lubricating Oil	6% Liq. Cresolis Comp., U. S. P.	0.04
Lard Oil	6% Commercial Coal-Tar, Hydrocarbon Dip.	4.00
Lard Oil	6% Cresylic Acid	3.15
Lard Oil	6% Liq. Cresolis Comp., U. S. P.	3.30

Another method of preparing oily substances for phenol coefficient determinations is based on the fact that many oily substances can be made into a perfectly

clear or at least a homogeneous product which will emulsify perfectly or passably or form a clear solution with water by the following treatment:

Dissolve 40 Gm. rosin in 100 Gm. of the oily substance by aid of a little heat with stirring; add 20 Gm. of a 25% solution of sodium hydroxide, stir well, allow to cool and measure to obtain relation between the total volume of the mixture and the 100 Gm. of oily substance employed in making the mixture.

This method was compared with the Hygienic Laboratory method using 4 cresol samples for the tests. The following results were obtained:

Cresol.	Hygienic laboratory method.	Rosin-sodium hydroxide method.
1	1.75	2.11
2	2.21	2.60
3	2.28	2.90
4	2.29	2.72

It will be noticed that in every case the effect of the rosin and sodium hydroxide was to raise the coefficient a trifle. However, the error introduced by the use of these substances is infinitely less than would be introduced by the inability to obtain a homogeneous blending of an oily substance with the culture media.

The method has been applied to the determination of the phenol coefficient of some "Commercial Pine Oils" with the following results:

"Pine oil."	Phenol coefficient.
1	0.82
2	1.29
3	1.44
4	2.02
5	5.94

A commercial "Pine-tar Creosote" had a phenol coefficient of only 0.282 by this method and was found to be heavily adulterated with kerosene.

There appears to be no doubt that the two methods here outlined might be applied to many other oily substances and possibly to some insoluble germicidal substances in powdered form.

—Reported by Geo. E. Ewe.

BASES FOR IODINE OINTMENT.

The formula for U. S. P. Iodine Ointment reads as follows:

"Iodine	4 Gm.
Potass. Iodide	4 Gm.
Glycerin	12 Gm.
Benzoinated Lard	80 Gm.
Total,	100 Gm.

Triturate the iodine and potassium iodide in a glass mortar with the glycerin until dissolved, then gradually incorporate the benzoinated lard and mix thoroughly. All contact with metallic utensils and containers must be avoided. This ointment must not be dispensed unless it has been recently prepared."

This ointment has been a frequent source of annoyance to physicians because of uncertainty of results due to spontaneous reduction of the free iodine content in the ointment by reaction of the iodine with the benzoinated lard to form "iodized fat." Therefore the finding and adoption of an ointment base which would have a

minimum iodine absorption value under the conditions obtained in the manufacture of Iodine Ointment would result in an improvement of this important U. S. P. ointment.

The table below shows the comparative loss in free iodine suffered by iodine ointments prepared with various bases. In preparing the ointments no attempt was made to weigh the iodine with quantitative exactness, but only approximately, the ointments being accurately assayed for free iodine after manufacture.

Base.	Appear. of ointment.	First assay. Per-cent.	Date of first assay.	Second assay. Per-cent.	Date of second assay.	Loss of total free iodine per month. Per-cent.	Appear. of ointment after second assay.
Benz. Lard	Smooth	3.50	1-11-18	0.88	7-25-18	10	Granular
Benz. Lard	Smooth	3.53	1-11-18	1.002	7-25-18	9.7	Granular
Ammon. Stearate / Vanishing Cream	Smooth	3.00	11-20-18	1.83	2-20-19	13	Granular
Yellow Petrolatum	Smooth	3.92	11-20-18	3.82	2-20-19	0.9	Smooth
Beef Suet	Smooth	3.91	11-20-18	2.83	2-20-19	9.2	Fairly smooth
Lanoline Anhyd	Smooth	4.19	11-20-18	2.61	2-20-19	12.6	Smooth
Lanoline Hydrous, water separated	....	..	....	....	...	..	.....
Benz. Lard, but Iodine increased	Smooth	5.59	12-20-18	4.67	2-20-19	8.2	Granular
Mutton Suet	Smooth	3.59	3-10-19	2.85	5-10-19	10.3	Granular
Eucerin, Anhyd	Smooth	4.25	11-20-18	4.02	2-20-19	1.8	Smooth
Eucerin, Hydrous	Smooth	3.72	11-20-18	...	2-20-19	..	Water separated
Cocoanut Oil	Smooth	3.63	11-20-18	3.34	2-20-19	2.7	Cryst. on surface
Hydrogenated Vegetable Oil	Smooth	3.48	11-20-18	3.10	2-20-19	3.6	Smooth
3% Ribbon Tragacanth Paste	Smooth	4.03	2- 8-19	3.11	5- 8-19	7.6	Smooth

Pullen[1] found a loss of free iodine of from 3.95 to 2.92% in 4 months, or an average of 6.5% per month when he used new lard, and a loss of from 3.38 to 2.26% in the same time, or an average of 8.3% per month when old lard was used.

Fried[1] found a loss of free iodine in U. S. P. VIII Iodine Ointment of from 3.89 to 2.81% in 1 month equivalent to 27.8% of the total free iodine, the loss remaining the same after 8 months.

Warren[2] found a loss of free iodine in U. S. P. VIII Ointment of from 3.32 to 2.99% in 7 days equivalent to a loss of 10% of the total free iodine and this loss was practically the same after 3 months, in one experiment.

In another experiment he found a loss of from 3.26 to 2.88% in 3 months or a total loss of 11.6%. In a third experiment the loss was from 3.30 to 2.88% in 3 months, or a total loss of 12.7%.

The satisfactory bases from the point of view of small loss of free iodine seem to be yellow petrolatum, anhydrous eucerin, coconut oil and hydrogenated vegetable oil.

Yellow petrolatum would probably be objected to unless supported by a large number of clinical trials because of the widespread difference of opinion regarding value of mineral bases in comparison with vegetable and animal fat bases.

Coconut oil is open to the objections of its great tendency to crystallize and its low melting point. These, however, can be corrected by an admixture of yellow bee's wax without decreasing the efficiency of the coconut oil in maintaining a fairly constant free iodine content.

Anhydrous eucerin has the one objection of comparatively high cost

Hydrogenated vegetable oil, while showing a trifle lower efficiency than yellow petrolatum, anhydrous eucerin and coconut oil, seems to be the most practical base for iodine ointment.

Attention is especially called to the extreme cheapness of the 3 percent ribbon tragacanth base mentioned in the table. This paste showed quite as good keeping qualities as iodine ointment made with benzoinated lard and appeared to be somewhat more effective, physiologically, according to the following results:

Iodine ointment made with benzoinated lard and containing 4 percent free iodine caused cracking of the skin when applied to the shaved abdomen of a guinea pig every morning for 7 days.

An iodine paste containing 4 percent free iodine, prepared according to the U. S. P. process for iodine ointment, but with the benzoinated lard replaced by a 3 percent ribbon tragacanth paste caused cracking of the skin when applied to the shaved abdomen of a guinea pig every morning for 4 days.

—Reported by Geo. E. Ewe.

REFERENCES.

[1] *Pharm. Jour.*, 1912, 89, 610.
[2] *Rep. Chem. Lab., A. M. A.*, 1917, 10–38.

CHEMICAL LABORATORIES
H. K. MULFORD CO., PHILADELPHIA.

A SUGGESTED CHANGE IN THE TECHNIQUE OF THE U. S. P. ASSAY OF OPIUM.*

BY H. W. JONES.

The method of assay for opium and its preparations given in the ninth revision of the United States Pharmacopoeia, while in general giving satisfactory results, contains certain directions, which, if followed specifically, may yield varying figures in the hands of different analysts, and indeed the results are apt to vary in the hands of the individual analyst unless he is unusually methodical in carrying out the details of analysis.

The directions for the extraction of the drug and for the crystallization of the alkaloid are quite definite and are scarcely capable of misconstruction, but the method directed for collecting the morphine crystals may allow a considerable variation in results even in the hands of the same operator. For this purpose the Pharmacopoeia directs that: "a small funnel, the neck of which has been previously closed with a pledget of purified cotton" be used. Through this pledget of cotton one is directed to pass the mother liquors from which the morphine has crystallized and which will contain fine crystals of morphine in suspension. I find that whether the pledget is thick or thin, pressed loosely or tightly will influence the quantity of these morphine crystals which will pass through with the mother liquors. That they do pass through has been observed repeatedly in this laboratory, for they may readily be seen upon allowing the filtrate to stand, and for this reason a second assay has been made on a number of samples already assayed by the U. S. P. method, using a quantitative filter paper instead of the

* Read before Scientific Section, A. Ph. A., New York meeting, 1919.

pledget of cotton. In each case higher results were obtained by using the filter paper as shown by the following figures:

Sample.	Assay with cotton.	Assay with filter paper.	Difference percent.
Powd. Opium	9.79	9.97	1.84
Gran. Opium	10.26	11.36	10.7
Fluid Opium, Conc	3.89	4.22	8.5
Tinct. Opium, U. S. P	0.89	0.96	7.86
Tinct. Opium, U. S. P	0.977	1.01	3.37
Tinc. Opium Deod	1.034	1.15	11.2

These results show a difference of from two percent to eleven percent above the U. S. P. assay by substituting filter paper for the pledget of cotton, a difference which is well worth considering. Aside from the higher results obtained, and the object of the assay is to ascertain the total morphine content of the sample, the filter paper is certainly more convenient to use than the cotton. After the morphine crystals are collected and washed upon the filter paper, it is only necessary to remove the filter and transfer it back to the flask in which crystallization took place, when one may add to this flask the required twenty mils of tenth-normal sulphuric acid without being obliged to run it drop by drop through the funnel in order to remove any crystals which may have adhered to the glass. The presence of the filter paper in the flask is no more of a hindrance to final titration than is the cotton.

In view of these facts it is suggested that the wording of the assay of the Pharmacopoeia beginning with the twenty-sixth line on page 306 be changed to read as follows:

> "Decant the ethereal layer upon a filter having a diameter of nine cm. which has been moistened with ether. Rinse the flask and contents with fifteen mils of ether and, when the ether has passed through, wash the filter and contents with a small quantity of ether and then pour the aqueous liquid upon the filter without trying to remove the crystals. Wash the crystals in the flask, and the filter and its contents with distilled water previously saturated with morphine, until the washings are colorless. Then add a few drops of distilled water to replace the morphinated water. When the filter has drained, remove it from the funnel and place it in the flask containing the remainder of the crystals. Add to the flask twenty mils of tenth-normal sulphuric acid V. S.
>
> Replace the cork, warm gently."

etc., the remainder of the text being unchanged.

A sample of opium might be rejected on the basis of an assay in which cotton was used and still yield the required proportion of alkaloid when a filter is substituted for the cotton, and it is rather a nice question whether the deficiency by the cotton process would be recognized as legal grounds for the rejection. In practice such disputed cases are usually submitted to a referee and any chemist to whom such a dispute was referred would probably not confine his assays strictly to the technique of the U. S. P. but would try to ascertain the total amount of the alkaloid present, using various means of doing so.

Acknowledgments are due Mr. Chas. Braubach for assistance in above assays.

LABORATORY OF THE WILLIAM S. MERRELL COMPANY,
CINCINNATI, OHIO.

NEW THERAPEUTIC USES FOR WELL-KNOWN CHEMICALS.*

BY E. FULLERTON COOK.

Benzyl Benzoate.

In an extensive study of the action of opium alkaloids, David I. Macht, M.D., of the Pharmacologic Laboratory of Johns Hopkins University, has demonstrated that these alkaloids divide into two classes of which morphine is the most important of those belonging to the pyridin-phenanthrene group and papaverine the principal representative of the benzyl-isoquinoline group.

The morphine group, including codeine, or methyl-morphine, dionine or ethyl-morphine, heroin or diacetyl-morphine, apomorphine, apocodeine, eucodine or methyl-codeine, paracodine or dihydrocodeine, and codeonal or codeine diethyl-barbiturate, all tend to stimulate the contractions and heighten the tonus of smooth muscles, but papaverine, or its related alkaloids narcotine, narceine, and hydrastine, all produce an inhibition of the contractions of smooth muscles and lower their tonus.

He also fully proves that this action of the papaverine group was due to the benzyl portion of the molecule and this led to an effort to find a non-narcotic benzyl combination which would produce similar therapeutic action and resulted in the discovery that the esters, benzyl acetate and benzyl benzoate possessed such properties.

This was first shown by experiments upon animals and subsequently by many clinical tests and has led to the suggested use of the latter where antispasmodic action upon the smooth muscles is desired.

It was found that while the acetate was of equal therapeutic value it produced slight irritation upon the stomach and the benzoate has, therefore, been recommended for general trial. It is employed in dysentery, biliary, renal and uterine colic, in arterial spasms, bronchial spasms, as in asthma, in dysmenorrhoea and other excessive spasms of smooth muscles.

Benzyl benzoate has long been used as a solvent in perfumery, especially for synthetic musk, and also for the incorporation and fixing of the flavor in chewing gum, where it prevents loss by evaporation during the heating and kneading of the mass, and it is interesting to learn that its therapeutic value was suggested by chemical and physiological experiments, conducted in a modern research laboratory, whereby the value of such work is again conclusively demonstrated.

Pharmaceutically, benzyl benzoate must be treated very much like an oil. Its dose is small, 2 to 5 minims, and it has been most largely administered in 20 percent alcoholic solution containing 2 percent of soap which makes a solution that is readily miscible with water. It has also been dissolved in fixed oil and dispensed in capsules. Dr. Litzenberg[1] suggests the following prescription for its administration for dysmenorrhoea:

℞ — Benzyl Benzoate..... 10 mils
Mucilage of Acacia..... 5 mils
Aromatic Elixir of Eriodictyon, to make..... 50 mils
Give from one-half to two teaspoonfuls as necessary.

* Read before Philadelphia Branch, A. Ph. A., November meeting, 1919.

[1] *Jour. A. M. A.*, 73, 601, 1919.

In the *Jour. A. M. A.*, Vol. 73, p. 599 and p. 601, a more extensive review and many additional references may be found.

Benzyl Alcohol (Phenmethylol).

During experimental work on benzyl combinations, in the study of their antispasmodic action, Dr. David I. Macht (Pharmacologic Laboratory of Johns Hopkins University) incidentally tasted a minute quantity of benzyl alcohol and discovered that his tongue was completely anesthetized by it, the numbness, coolness and hardness, similar to the action of cocaine, continuing for over two hours.

This accidental discovery was followed by numerous experiments on animals and subsequently in minor operations and dentistry, with results that compare favorably with any of the known local anesthetics and in some respects greatly to the advantage of the benzyl alcohol.

Fortunately benzyl alcohol is soluble in water and normal salt solution to the extent of 4 percent and this is sufficiently strong for use as a local anesthetic by injection. When used as an anesthetic in from 1 to 4 percent solutions in normal salt, it has never been found to cause any marked irritation or destruction of tissue, certainly less than that produced by equivalent amounts of cocaine or quinine and urea hydrochloride solutions.

The solutions may be sterilized by boiling without causing decomposition or loss of benzyl alcohol. When used on the eye it was found desirable to add a small amount of epinephrin (1 in 20,000) thus avoiding all irritation. A comprehensive study of its anesthetic and pharmacologic action will be found in the *Journal of Pharmacology and Experimental Therapeutics*, 1918, p. 263.

Solution of Zinc Chloride.

William Wayne Babcock, Lieutenant Colonel in the Medical Corps of the United States Army, stationed at General Hospital No. 6, Fort McPherson, Georgia, has recently reported the successful use of solution of zinc chloride (prepared by saturating U. S. P. hydrochloric acid with zinc) in the treatment of chronic infected wounds of soft tissue and also of bone involvement.

The patients were all returned from the war areas and had already received months of treatment, usually with Dakin's solution, and been operated upon at least several times. The wounds showed a variety of infecting micro-organisms, and the solution of zinc chloride was used as a sterilizing agent; the tissue, which it simultaneously destroyed, being completely removed as a part of the operation. This procedure permitted the immediate closing of wounds, the avoiding of painful dressings, and a large percentage of permanent recoveries.

The technique is as follows, the operation being conducted under local or general anesthesia:

Wound Preparation.—The wound areas having previously been thoroughly cleansed by daily washing and shaving, the skin is thoroughly scrubbed with a solution consisting of 2 parts of compound solution of cresol, 10 parts of oil of turpentine and 88 parts of gasoline, and then painted with 3 percent tincture of iodine.

Wound Sterilization.—Immediately after the cleansing, the sinuses, cavities and wound surfaces are sterilized by the use of the solution of zinc chloride, injecting

it under pressure, or packing with cotton pledgets, dipped in the solution, and great care is taken to see that all unhealed and granulating surfaces are reached.

The time of five minutes is allowed for the penetration of the zinc solution, and if it has been injected, under pressure, into bone sinuses, a tourniquet must be applied and the solution allowed to enter the circulation only slowly, otherwise collapse will result. Because of the caustic character of this solution and the danger of direct introduction into the circulation it cannot be used in fistulas connected with the bladder, or intestine, nor can it be used in the presence of erysipelas, or other acute spreading infection.

Color Delineation.—At the end of five minutes, the following solution is applied, in the same manner as the zinc chloride solution:

Saturated Alcoholic Solution of Methylene Blue	20
Potassium Hydroxide	3
Phenol	5
Ether, sufficient to make	100

When this solution evaporates it leaves the exposed granular surfaces dark blue-black, dry bloodless on manipulation, and sterile, and beneath a grayish white tissue which has been sterilized and devitalized by the zinc chloride.

Excision of Infected Area.—The entire diseased area is now removed, the wound closed, and a moist, non-irritating, antiseptic dressing applied for the first week, or until all tissue reaction has subsided. The solution used consists of:

Hydrated Chloral	1
Alcohol	10
Glycerin	25
Saturated solution of boric acid	65

This is injected into the gauze dressings every two or four hours by means of rubber tubes which are inserted when the dressing is applied.

The part where the operation occurred should be kept quiet, elevated, and warm, and there should be no probing, squeezing, or introduction of tubes. The dressings should be changed daily and the adjacent skin must be kept clean and coated with a 2 percent yellow mercuric oxide ointment.

NOTE.—The details of this treatment and formulas have been taken from a report on the subject read by Dr. Babcock at the recent meeting of the American Medical Association but not yet published.

ALCOHOL IN THE PHARMACOPOEIA.*

BY HENRY KRAEMER.

The study of the use of alcohol in Pharmacy has engaged the master minds in our profession. It is more than 50 years ago that Dr. E. R. Squibb[1] in one of his classical papers discussed the subject of "the proposed economy of alcohol in percolation, as applied to the extracts and fluidextracts of the Pharmacopoeia." He called attention to the fact that "the increase in the price of alcohol since the last revision of the U. S. Pharmacopoeia has materially interfered with the use of the officinal extracts and fluidextracts by the greatly increased cost of preparing

* Read before Scientific Section, A. Ph. A., New York meeting, 1919.

[1] Proc. A. PH. A., 1865, p. 201.

them and unless some plan can be found whereby either the cost or the quantity of alcohol may be reduced it appears probable that these classes of convenient and useful preparations will be disused or debased." For nearly 40 years he studied the subject of percolation and economy of alcohol devising new pieces of apparatus and improved methods of manufacture. No one more fully recognized the importance of alcohol as a solvent and the difficulties that would accrue in the making of standard preparations by the placing of restrictions on its use as a solvent. He advocated that the government reduce the price of alcohol for certain uses in the arts. Probably no one industry has suffered more than the drug trade by virtue of the internal revenue tax on proof spirit. One of the greatest deterrents in our advancing to the forefront in the manufacture of chemicals has been the fact of the excessive tax on alcohol. Twenty-five years ago the chemical industries of this country had forged ahead obtaining fourth place in the manufacture of fine chemicals and of products in which alcohol plays a part. There was no question but that for the exorbitant tax at that time of 90 cents per gallon on proof spirits, equivalent to about $1.70 on alcohol of 94 percent, we could have forged ahead in our manufacturing industries, taking the first place. At the same time that there was a concerted action to obtain this protection to American industries the pharmacists and manufacturers of Germany had secured duty-free alcohol and there were no unsurmountable obstacles which occurred to their legislators in establishing the line between legitimate manufacture and that coming within the province of internal revenue tax. The war just closed has revealed the tremendous disadvantages our industries have been laboring under because of the restrictions placed on the use of alcohol. The amount of alcohol required in the preparation of medicines and in the arts and manufactures is enormous and the restrictions which have been placed on its use have come because it is feared that some of this alcohol might be used as a beverage, escaping the revenue tax. Contrary to popular belief that it would be impossible to prevent fraud in this direction I am very well satisfied that it would be impossible for any one to practice fraud any length of time and not be caught up with. Alcohol as a solvent has no equal in pharmacy, furthermore as a preservative there is nothing that can replace it which is less toxic and free from harm to the patient. Some years ago it was proposed to use acetic acid on an extensive scale as a menstruum. After a most painstaking examination at the hands of the most skilled manufacturing pharmacists it has been shown to be inferior to other acids as solvents and that the preparations made from them are therapeutically impossible. The class known as "Vinegars" have been known from antiquity and of the long list only one of them has survived, namely, Acetum Scillae, and it is stated in the United States Dispensatory that "Vinegar of Squill is certainly inferior to the alcoholic preparations of this drug in its effects upon the heart and kidneys." Similarly it has been proposed to use glycerin on an extensive scale as a preservative. But as I have said on very many occasions glycerin is not a preservative except in very great concentration and its use is out of the question excepting as an adjunct to other preparations.

The Pharmacopoeia is a work dealing with the definitions and descriptions of drugs and gives approved formulas for the making of preparations from them. The preparation of this work is intrusted by the medical and pharmaceutical

professions to the most able persons who are willing to undertake the editing of the information available and capable of confirmation. It must be left to these men of known ability, sound judgment, and wide experience to determine what drugs they will include and the preparations which shall be made official. Furthermore, it must be left to them absolutely to determine what menstrua and preservatives they shall employ. No restrictions should be placed upon them as they are the compilers of a law book, recognized by those who have to do with the upholding of national and state food and drug laws. Of course the use of alcohol and preservatives according to some people might be abused, but I know that it can be safely left to the Pharmacopoeial Convention to see to it that nothing be sanctioned that is inimical to the public health. No outside influence, no matter how commercial or vast its interests might be, can do anything to influence the majority of members on any single question which has to do with the fostering or encouraging of any abuse that might arise from either the inclusion of any drugs or the use of any solvent that might be employed in the manufacture of galenicals. It might seem desirable to some who have an overpowering sense of appreciation of the evils which result from the use of alcoholic preparations which can be used for beverage purposes, that in the next Pharmacopoeia we should reduce the number of alcoholic preparations or eliminate them entirely, and I am frank to say that I share in this view. I nevertheless must, in the interests of suffering humanity, state that it is impossible with the knowledge which we have to-day to attain this position. Furthermore I should say that I know that some of us will give our best thought and our undivided efforts to the elimination of all of those preparations which are likely to be abused. One not accustomed to research and not familiar with the literature of Pharmacy cannot appreciate what a difficult problem it would be for the Revision Committee of the U. S. P. to materially change the methods of preparation of the medicaments now recognized as official and depart from the processes which have thus far been perfected. You might as well ask the Committee to make a 10 percent solution of pure gold in water when scientifically we know that not more than 1/100 of one percent will dissolve in water.

Up to this point I have discussed the subject of alcohol in the Pharmacopoeia entirely from its necessity in the manufacture of medicines. It may be that you prefer that I should have considered it from the angle of the probable legislation in connection with the prohibition problem. I am well aware of the desire on the part of the Anti-Saloon League of America to obtain all the information possible concerning the necessity for the use of alcohol in Pharmacy. Inasmuch as a letter was directed to me by the General Counsel of this League, and as I have replied to Mr. Wheeler, I will give this part of the correspondence.

NOVEMBER 19, 1918.

DEAR SIR:

Is alcohol necessary in patent medicines and drugs to preserve their therapeutic properties? Can a substitute for alcohol be used successfully? Your opinion with reasons will be greatly appreciated.

Yours cordially,

(Signed) W. B. WHEELER,
General Counsel.

PROFESSOR HENRY KRAEMER,
Ann Arbor, Michigan.

This is my reply to Mr. Wheeler's letter of November 19.

DECEMBER 3, 1918.

MR. W. B. WHEELER,
30 Bliss Bldg.,
Washington, D. C.

MY DEAR MR. WHEELER:

Replying to your letter of November 19, would say that I can readily appreciate your interest in the subject of the presence of alcohol in patent medicines, as their use is liable to certain grave abuses.

It is conceded by all pharmacists that the proper extraction of medicinal ingredients in most crude drugs requires alcohol in greater or less proportion, and the percentage of alcohol that must be used as a menstruum in extracting such drugs must be determined in each individual case. In various other liquid preparations alcohol in a greater or less percentage is considered necessary to hold active ingredients in solution, and the quantity necessary must be determined in each case. Practically every liquid preparation made, unless it contains a large proportion of some essential oil or other preservative, requires the presence of alcohol as a preservative.

At the present time there is no known substitute for alcohol, as the solvent for certain medicaments. Now and then some substitute has been recommended, but in nearly every case where this has been admitted, the substitutes have proved failures, and the drug trade have abandoned them.

I would sum up the whole matter by saying that the various constituents and the proportion of each in the medicaments commonly recognized by the medical profession and in the National Formulary and the U. S. P. are the consummation of all the wisdom of the past one hundred years and that it would be very unsafe to abruptly depart from this. Assuming that the secret remedy or the "patent medicine" is very similar in nature to a recognized official preparation of a similar kind, the same rule would hold good as to content of alcohol. A demonstration that a patented remedy is lacking in content of generally recognized therapeutic ingredients should serve to condemn it, whether it contains alcohol or whether it does not.

Very truly yours,

As I view the discussions which have been reported concerning alcoholic legislation in connection with the prohibition problem, I do not think that we need fear that in framing prohibition laws it will be impossible to obtain and use alcohol for legitimate manufacturing purposes. Of course it is necessary for us to keep all of those who have to do with the framing of such legislation well informed in regard to the facts in the case. The manufacturing interests as well as the representatives of the U. S. Pharmacopoeial Convention have clearly indicated what is essential, and the editor of the *American Druggist*, in an editorial in that Journal for July, has summarized the present situation as follows:

It is safe to predict that nothing radically detrimental to the interests alluded to will be incorporated in the new federal legislation. While all provisions of the prohibition law will be enforced so far as they relate to the manufacture and use of intoxicating liquors, means will be provided for the legitimate uses of industrial alcohol and for the punishment of the illicit user and nostrum faker.

In a report of the hearings at Washington appearing in a contemporary, the following paragraphs put the matter concisely and forcefully:

"Even the drastic prohibition bills submitted by representatives of the Anti-Saloon League, or drafted upon data submitted by the league, provide ample exemptions for the users of alcohol industrially, with due safeguards to prevent the manufacture and sale of alcoholic compounds, no matter what the guise, that could be employed as beverages. The exemptions

named under the Volstead (internal revenue) bill are specific in removing from the jurisdiction of the act:

"Denatured alcohol or denatured rum produced and used as provided by existing laws and regulations.

"Medicinal preparations manufactured in accordance with formulas prescribed by the United States Pharmacopoeia or National Formulary or the American Institute of Homeopathy that are nonpotable and incapable of being used for beverage purposes.

"Patented and proprietary medicines that are nonpotable and incapable of being used for beverage purposes.

"Toilet, medicinal and antiseptic preparations and solutions that are nonpotable and incapable of being used for beverage purposes, contained in bottles or packages, upon which are printed conspicuously and legibly in English the quantity by volume of alcohol in such preparations.

"Flavoring extracts for use only in cooking and for culinary purposes that are nonpotable and incapable of being used for beverage purposes.

"Vinegar manufactured from cider."

Probably the simplest statement of the present day situation regarding the use of alcohol in Pharmacy is the one published in the *N. A. R. D.* Journal for July 3, 1919, page 590. The editor says,

"It is admitted by everyone who has any knowledge whatever upon the subject, worthy of thoughful consideration, that alcohol is used in medicine as a solvent and preservative and not for its intoxicating effect and that its use both as a solvent and a preservative is absolutely necessary. Furthermore, notwithstanding the statements made to the contrary by numerous irresponsible parties, no suitable substitute has ever been found which would satisfactorily replace alcohol for these purposes.

"Now it is argued by some, and very properly so, that, admitting this to be true, still it is necessary that proper restriction and safeguard be placed around the manufacture and sale of such preparations to prevent their sale and use for beverage purposes. This contention is frankly admitted, but we maintain that ample protection of this character has already been placed around the use and sale of alcoholic medicinal preparations by the provisions of the Food Control Act, passed by Congress and effective since September 8, 1917.

"The Food Control Act, it will be recalled, provides for the production, and all dealers handling such non-beverage alcohol are required to file bond with the United States Government and obtain permit to use and sell such alcohol and the dealer, be the manufacturer or retailer, is thus obligated to the Government to prevent the sale and use of such alcohol for beverage purposes and the manufacturer or dealer who sells such alcohol or preparations made therefrom is not only liable to the forfeiture of his bond, but also to criminal prosecution.

"Now, it is this non-beverage alcohol that is used in the manufacture of medicinal preparations and, therefore, alcoholic medicinal preparations are subject to the law and regulations governing the sale and use of non-beverage alcohol.

"In view of these facts, we still maintain that there is no justification for further legislation regulating the sale of alcoholic medicinal preparations and for including such preparations in the definition of intoxicating liquors, thereby casting a stigma and slur upon a perfectly legitimate calling and connecting it with the discredited liquor business. These are our reasons for so strenuously objecting to this particular provision in the various prohibition enforcement bills and we have not as yet heard any argument advanced from any source that our position in this respect is not well taken."

In closing I must refer to the very excellent paper by Mr. C. M. Woodruff read at the last meeting of the American Drug Manufacturers' Association on "The Future of Alcoholic Medicinals." In this we have a very lucid exposition of the situation at present and he has shown that the pharmaceutical interests are thoroughly alive to the alcoholic situation from every angle.

Of course, we may expect, as was pointed out by Mr. Adams in a paper read

before the Scientific Section of the American Pharmaceutical Association last year[1], "that as long as a drop of alcohol is sold, there will be demands to stop it, but careful supervision on the part of the pharmacists will disarm many such objectors and the real mass of the people will be satisfied." The only probable solution is as pointed out by Mr. Adams in the more extended use of denatured alcohol, but it is impossible to introduce a denaturing substance which will not interfere with its use in the preparation of medicines for internal administration. As a matter of fact we should look upon all medicines in which alcohol is used as a solvent and preservative as having been denatured by the extraction of the therapeutic substances entering into them.

In conclusion, we may summarize the situation that in the preparations recognized by the medical profession and included in the United States Pharmacopoeia, and we might add also in the National Formulary, regarding the various constituents and the proportions of each in the medicaments, as well as the solvents, preservatives, and vehicles, all represent the consummation of the wisdom and experience of the past one hundred years and that it would be very unsafe to abruptly depart from this. Assuming that the secret remedy or the "patent medicine" is very similar in nature to a recognized official preparation of a similar kind, the same rule would hold good as to the content of alcohol. A demonstration that a patented remedy is lacking in content of generally recognized therapeutic ingredients should serve to condemn it, whether it contains alcohol or whether it does not.

PROGRAM OF THE SECTION ON PRACTICAL PHARMACY AND DISPENSING.

As Chairman of the Section on Pharmacy and Dispensing of the A. Ph. A., I am sending out an invitation and urgent request to all who are interested in the practical work in the store to present papers before this Section next May.

Because of the meeting coming so much earlier than usual, it will be necessary to have the titles of papers furnished me not later than the middle of March, and it is desirable that the papers be received at the same time or as soon after as possible.

Some subjects which have been suggested are:

1. Constructive criticisms of the U. S. P. This is particularly pertinent as the U. S. P. Convention follows the next week.
2. The part which the pharmacist is to play in the revision of the U. S. P.
3. Consideration of new remedies.
4. Papers dealing with prescription work.
5. The pharmacist as a clinical chemist. Papers from those who have had experience along this line are especially desired.
6. What professional work can the pharmacist do to take the place of that which is passinginto the hands of the large manufacturer?
7. A discussion of the affiliation of the drug clerk organizations with labor unions, and drug clerk strikes.
8. Is it desirable to have laws regulating the hours which the pharmacist may work?

Papers bearing on any phase of Practical Pharmacy will be very acceptable.

[Signed] E. A. RUDDIMAN, *Chairman.*

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[1] J. A. PH. A., Vol. VIII, p. 109.

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Conducted by H. V. Arny, Reporter on the Progress of Pharmacy, Chairman of the Committee on Research.

Beginning with the February issue of the JOURNAL one page or more of each issue will be devoted to a list of articles on pharmaceutical research that appear in the pharmaceutical and other journals of the world. Whenever possible, the list appearing a certain month will record the articles appearing in American journals of the preceding month, and the articles appearing in foreign journals will be recorded as quickly as possible after the date when the Journals reach the Reporter.

All articles appearing in these lists will be presented in abstracted form in the bound volumes of the Year Book, which will be issued as soon after the end of the year represented as editing and printing conditions permit. Those desiring abstracts immediately can obtain same for a fee of one dollar each by communicating with H. V. Arny, 115 West 68th St., New York, and arrangements can also be made for securing photographic reproduction of entire articles at moderate prices when such are desired.

In preparing the list of articles in this bibliography only papers presenting results of actual experimental work will be given. Papers referring to the business side of pharmacy, important though such papers are, are not considered as belonging to this specialized bibliography of pharmaceutical research. In only rare cases will deviations be made from the foregoing rule of citing only those articles describing experimental work. Thus, if a general article describing clearly an important scientific discovery and its co-relation to other discoveries is found, it will likely be included in the list.

In launching this undertaking, it is hoped the members of the American Pharmaceutical Association will coöperate with the Reporter in making the bibliography complete. This is particularly the case with research articles prepared by our members and appearing in scientific journals other than those relating to pharmacy. A post card memorandum of such an article giving author and subject, as well as volume, year, month and page of the JOURNAL, will be greatly appreciated.

In conclusion, may the Reporter appeal to pharmaceutical and other scientific journals for aid in making this bibliography as complete and as effective as possible?

ENCOURAGING THE EXTENSION OF USES OF GLYCERIN.

A prominent manufacturer has recently established a fellowship at the Mellon Institute of Industrial Research, Pittsburgh, Pa., for the purpose of extending the industrial uses of glycerin. It is expected that this investigation will be centered primarily on the use of glycerin to replace alcohol in the flavoring extract and allied industries.

It is hoped that the results of this "glycerin fellowship" will enlist the interest of the laboratories of schools and manufacturing plants.

SYNTHETIC PRODUCTION OF GLYCERIN.

The annual report of the Secretary of the Treasury carries the following paragraph, relative to the synthetic glycerin formula prepared in the chemical laboratory of the Bureau of Internal Revenue:

"The termination of military operations in November 1918 made it unnecessary to continue the special project of the chemical laboratory of the Bureau of Internal Revenue for the promotion of the synthetic manufacture of glycerin from the fermentation of molasses according to the formula which had been worked out by the laboratory, as stated in the preceding annual report of the Secretary of the Treasury. This formula, however, which had engaged the attention of a considerable staff of chemists for a period of three months, may have considerable commercial value, as it permits the complete recovery of the raw material in the form of alcohol and potash, as well as glycerin. The formulah as therefore been made available to any manufacturers who may be interested."

PROCEEDINGS OF THE NATIONAL DRUG TRADE CONFERENCE HELD AT THE NEW WILLARD HOTEL, WASHINGTON, NOVEMBER 25, 1919.

The Conference was called to order by the President, Professor James H. Beal, at 10:30 A.M. November 25, 1919.

The following communication from the American Conference of Pharmaceutical Faculties was read:

"BOSTON, MASS., November 18, 1919

"MR. CHARLES M. WOODRUFF, Secretary, etc.

"My dear Mr. Woodruff:

"In October 1918, you wrote informing me that the American Conference of Pharmaceutical Faculties had been invited to become a member of the National Drug Trade Conference, and I answered that your letter had been received and the matter would be taken up by our Executive Committee. This was done, but we found that it was necessary to wait for a vote on the question by the whole Conference and also for us to provide funds with which to pay assessments and the expenses of delegates. At the recent meeting of the Conference it was voted to accept the invitation and the following delegation has been appointed:

"Henry P. Hynson, 423 North Charles St., Baltimore, Md., Chairman.

"Wortley F. Rudd, 1716 Grove Ave., Richmond, Virginia, and Theodore J. Bradley, 179 Longwood Ave., Boston, Mass.

"I trust that this unavoidable delay has not made our acceptance too late. If you will inform me of the amount of the assessment for this year, I will put it through for payment. Yours truly,

(Signed) THEODORE J. BRADLEY, *Secretary.*"

On motion the communication was received; the American Conference of Pharmaceutical Faculties was admitted as an organization member of the National Drug Trade Conference and the delegates named in the communication introduced to the Conference by the President.

The roll being called the following delegates were found to be present:

Representing the American Pharmaceutical Association: John C. Wallace, S. L. Hilton and James H. Beal.

Representing the National Wholesale Druggists' Association: W. L. Crounse, alternate for Charles A. West; C. Mahlon Kline and Frank E. Holliday, alternate for George W. Lattimer.

Representing the National Association of Retail Druggists: Samuel C. Henry, Frank T. Stone, alternate for James F. Finneran, and Eugene C. Brokmeyer.

Representing the American Association of Pharmaceutical Chemists: George C. Pratt, alternate for George C. Hall; Dr. W. C. Abbott and Harry C. Noonan, alternate for B. L. Maltbie.

Representing the American Drug Manufacturers' Association: Charles M. Woodruff, R. C. Stofer, alternate for Franklin Black, and Charles J. Lynn, alternate for Fred B. Kilmer.

Representing the Proprietary Association of America: Frank A. Blair, alternate for Fred K. Fernald; Philip I. Heuisler and Harry B. Thompson.

Representing the National Association of Boards of Pharmacy: H. C. Christensen.

Representing the American Conference of Pharmaceutical Faculties: Henry P. Hynson, Wortley F. Rudd and Theodore J. Bradley.

On motion the minutes of the last meeting were approved as printed.

The President then appointed the following nominating committee: John C. Wallace, Frank T. Stone, C. J. Lynn, Frank A. Blair, Frank E. Holliday, W. C. Abbott, H. C. Christensen and W. F. Rudd.

The Executive Committee then made the following report:

REPORT OF A MEETING OF THE EXECUTIVE COMMITTEE OF THE NATIONAL DRUG TRADE CONFERENCE HELD AT THE NEW WILLARD HOTEL, WASHINGTON, D. C., MONDAY, NOVEMBER 24, 1919.

Meeting called to order by the chairman of the Committee at 10:30 A.M.

Present: James H. Beal, Chairman; Charles M. Woodruff, Secretary; Frank E. Holliday,

representing George W. Lattimer; Frank T. Stone, representing James F. Finneran; Harry B. Thompson and Dr. W. C. Abbott.

The Secretary-Treasurer then read the following Financial Report:

To the officers of and delegates to the National Drug Trade Conference: I hereby submit my financial report to date:

Receipts.

On hand January 1, 1919	$468.24	
Other Receipts	0	
		$468.24

Expenditures.

Voucher:		
1 American Pharm. Assn. 200 reprints special meeting September 15, 1918	$6.60	
2 Parke, Davis & Co. 500 Codes and Regulations, etc	12.86	
3 U. S. Chamber Commerce, dues	10.00	
4 Am. Pharm. Assn. 200 reprints of proceedings of January 7, 1919	6.60	
		$36.06
Balance on hand		$432.18

The balance on hand is deposited in the Jefferson Avenue Branch of the Dime Savings Bank, at Detroit, Mich. to the credit of the National Drug Trade Conference.

Respectfully submitted,
(Signed) CHARLES M. WOODRUFF,
Secretary-Treasurer.

On motion duly seconded and carried Mr. Frank T. Stone and Dr. W. C. Abbott were appointed a Committee to audit the above report.

The Secretary then read the communication from the American Conference of Pharmaceutical Faculties hereinbefore referred to, and the Committee unanimously voted to recommend to the Conference that the American Conference of Pharmaceutical Faculties be admitted to membership in the National Drug Trade Conference and the delegates named, or their alternates, be received.

The Committee appointed to audit the Secretary-Treasurer's Financial Report then reported that they had found the same correct and it was unanimously voted to recommend to the Conference that the report be received and approved.

Professor James H. Beal then moved that the Conference be requested to adopt the following resolution, and to telegraph the same to Mr. Lattimer.

> *Resolved*, That the National Drug Trade Conference learns with regret of the ill-health of one of its delegate members, Mr. George W. Lattimer of Columbus, Ohio, and hereby extends to him its heartfelt sympathy, and most earnest wishes for his speedy recovery.

Motion seconded by Mr. Holliday and unanimously adopted.

Mr. Holliday moved that the Committee recommend to the Conference that the Secretary of the Conference be instructed to coöperate with the Secretary of the National Pharmaceutical Publicity Committee in preparing and later presenting some tangible and feasible plan for national publicity in the interest of American Pharmacy.

Seconded by Dr. Abbott and unanimously adopted.

Mr. Thompson moved that the following resolution be referred to the Conference and its adoption recommednded.

> *Resolved*, That the National Drug Trade Conference opposes the adoption of any amendment to the Food and Drugs Act enlarging the list of habit-forming and poisonous drugs named in paragraph 2, Section 8 of said Act; or limiting the sale of such drugs to physician's prescriptions unless the objectionable features thereof be stated on the labels; such legislation being proposed in a letter bearing date October 25, 1919, addressed to Representative Haugen, Chairman of the Committee on Agriculture of the House of Representatives by the Hon. D. F. Houston, Secretary of Agriculture.

Motion seconded by Dr. Abbott and unanimously adopted.

Mr. Thompson moved that the following resolution be recommended to the Conference for adoption.

Resolved, That the Conference recommends to the Secretary of Agriculture, the Secretary of the Treasury and the Secretary of Commerce that the Regulations for the Enforcement of the Food and Drugs Act be amended so as to permit the substances required by paragraph 2 of Section 8 of said Act to be stated, by giving the quantity in each pill, tablet, powder or other separate unit-dose instead of the quantity in each ounce of such pills, tablets, powders, etc.

Motion seconded by Dr. Abbott and unanimously adopted.

Moved by Mr. Thompson that the Committee recommend the incoming president appoint a representative to attend the coming hearing in room 301, Hooe Building, 1330 F. Street, N. W. to devise ways and means to medicate or decrease the potability of certain alcoholic preparations.

Motion seconded by Dr. Abbott and unanimously adopted.

Mr. Holliday moved to recommend the adoption of the following resolutions by the Conference:

Resolved, That the constituent members of the Conference be urged to do all in their power to secure the enactment by the several state legislatures of prohibition laws that shall be uniform with the Federal prohibition law, to the end that compliance with one will be automatic compliance with the other; and be it further

Resolved, That the delegates be and they are hereby requested to urge the members of their respective organizations to do all they individually can to further uniformity in Federal and State Prohibition legislation.

Motion seconded and unanimously adopted.

Mr. Holliday then moved that the Executive Committee recommend the adoption by the Conference of the following resolution:

Resolved, That the National Drug Trade Conference approve the enactment of the Calder Bill, being Senate Bill 3011; or some similar measure to secure uniformity in Drug legislation.

Motion seconded and unanimously carried.

The committee then adjourned to meet at the call of the chairman.

JAMES H. BEAL, *Chairman.*
CHARLES M. WOODRUFF, *Secretary.*

Mr. Stofer moved that the report be received and the recommendations of the Executive Committee taken up seriatim. Supported by Mr. Wallace, put to vote and carried.

The Conference, having already approved the recommendation that the American Conference of Pharmaceutical Faculties be admitted, then proceed to consider the recommendation that the Financial report of the Secretary-Treasurer be received and approved, and on motion of Mr. Stofer supported by Mr. Crounse the recommendation was concurred in.

The recommendation of the Executive Committee respecting the illness of Mr. George W. Lattimer was concurred in by a standing vote and the following telegram immediately sent:

"Conference learns with regret your illness and votes its heart-felt sympathy and earnest wishes for your speedy recovery."

On motion of Mr. Wallace seconded by Mr. Stofer, and after remarks by Messrs. Holliday, Noonan, Bradley, Stofer, Lynn, Abbott and Woodruff, the Secretary of the Conference was instructed to coöperate with the Secretary of the National Pharmaceutical Publicity Committee in preparing and later presenting some tangible and feasible plan for national publicity in the interest of American Pharmacy.

On motion of Mr. Woodruff seconded by Mr. Kline, and after explanatory remarks by Mr. Thompson, the resolution recommended by the Executive Committee opposing the enlargement of the list of drugs required to be stated on drug packages by the Food and Drugs Act was unanimously adopted.

Mr. Crounse moved that a committee of three delegates be appointed by the incoming president to coöperate with the local representatives of the National pharmaceutical bodies in opposing such legislation.

The motion was duly seconded and carried.

On motion of Mr. Stofer seconded by Mr. Lynn the resolution respecting the method of declaring the content of the required drugs in the case of pills, tablets, etc. was postponed until the afternoon session.

On motion of Mr. Crounse, seconded by Mr. Blair, and after remarks by Mr. Crounse and Mr. Lynn, the recommendation of the committee that the incoming president appoint a representative to attend the coming hearing to determine ways and means to decrease the potability of certain alcoholic preparations was concurred in.

On motion of Mr. Woodruff seconded by Mr. Hynson, and after remarks by Messrs. Henry Thompson, Crounse, Holliday and Woodruff the resolution recommended by the Committee urging uniform liquor legislation was adopted unanimously.

On motion of Mr. Crounse seconded by Mr. Lynn the resolution of the Committee in support of the Calder bill was adopted.

President Beal then stated that the Executive Committee had informally requested him to draw a resolution on the lines of the one he was about to read, and offered the following:

> *Resolved*, That the National Drug Trade Conference urges upon those charged with the enforcement of the Federal Prohibition act the importance of distinguishing between the attempted or reported use of an alcoholic medicinal compound for beverage purposes and its actual and successful use for such purposes. The mere rumor that a given medicinal compound can be used as alcoholic beverage, or a newspaper report to that effect, will cause many alcoholic addicts to make a trial of it, creating a temporary spurt in the sale which ceases as soon as the purchasers discover their mistake.
>
> The National Drug Trade Conference therefore urges that alcoholic medicinal compounds in existence before the adoption of the Federal Prohibition Act and recognized in the drug trade as legitimate medicinal preparations before that date should be condemned only upon the clearest and fullest evidence of their actual and repeated and successful employment for intoxicating beverage purposes.

On motion of Professor Beal seconded by Mr. Stofer the resolution was adopted.

On motion of Mr. Wallace, seconded by Mr. Holliday, Mr. Wheeler, attorney for the Anti-Saloon League, was invited to address the Conference at 2:30 in the afternoon.

The Conference then adjourned until two o'clock.

Afternoon Session.

The Conference reconvened at 2 o'clock P.M.

Mr. Thompson then moved the adoption of the following resolution as a substitute for the similar resolution recommended by the Executive Committee.

> *Resolved*, That the Conference recommends to the Secretary of Agriculture, the Secretary of the Treasury and the Secretary of Commerce that the regulations for the enforcement of the Food and Drugs Act be so amended as to require the substances required by paragraph 2, Section 8 of said act to be stated on the package, to be stated by giving the quantity in each pill, tablet, powder or other separate unit dose instead of the quantity in each ounce; provided, however, that a reasonable time shall be given manufacturers to use up present stocks of labels and packages.

The motion was seconded by Mr. Lynn, put to vote and carried.

Mr. Wayne B. Wheeler was then introduced and made some remarks in which he expressed the purpose of the league he represented was not to unnecessarily hamper the pharmaceutical industryin the conduct of its lawful business.

The President replied expressing the views of the Conference as indicated by the resolutions it had passed at this session in all of which Mr. Wheeler acquiesced.

The Nominating Committee then reported the following nominations:

For President: Samuel C. Henry of Chicago.

For Vice-President: H. Lionel Meredith of Baltimore.

For Secretary-Treasurer: W. J. Woodruff of Detroit.

On motion duly seconded and carried the Secretary cast the ballot of the Conference for the candidates and they were declared duly elected.

The following delegates were then duly elected to serve with the president and secretary as the Executive Committee:

John C. Wallace, George W. Lattimer, or Clarence M. Kline, in the event of Mr. Lattimer not being able to serve; Dr. W. C. Abbott, Harry B. Thompson, H. Lionel Meredith, Henry P. Hynson.

On motion duly seconded and carried the report of the Executive Committee as amended by the motion of Mr. Thompson was approved and adopted as a whole.

Mr. Hilton then read a communication from the Manufacturers' Association of Seattle in behalf of the Metric System, which was laid on the table.

On motion duly seconded and carried the President-elect was instructed to appoint a committee of three to urge the immediate enactment of the Steenerson Bill H. R. 9781 to so amend the law respecting the mailing of poisons as to permit the Postmaster General to make regulations that will admit medicinal preparations containing poisonous substances to the mails.

Mr. Bradley moved and Mr. Stofer seconded the motion that the President-elect be instructed to appoint a committee of five to consider and report to the Executive Committee upon the question of reducing and changing certain menstrua with the object of eliminating alcohol or reducing its strength or quantity wherever possible.

After some discussion the mover and his second accepted a substitute motion that the whole matter be referred to the Executive Committee with power, and it was so ordered.

On motion duly seconded and carried it was voted to continue the affiliation of the Conference with the Chamber of Commerce of the United States and the appointment of a councilor was referred to the President-elect.

On motion duly seconded and carried the Executive Committee was instructed to apply for representation in the next Pharmacopoeial Convention, and if such representation was granted to appoint three delegates.

Consideration of the Steenerson Bill respecting the exclusion of advertisements of remedies for the treatment of venereal diseases was referred to the Executive Committee with power.

On motion duly seconded and carried the question of price maintenance was referred to the incoming Executive Committee.

The new President was then inducted into his office and took the Chair.

J. H. Beal presented the following resolutions which were adopted unanimously by a rising vote and ordered to be spread upon the minutes:

WHEREAS, the Hon. Charles M. Woodruff was one of the original founders and organizers of the National Drug Trade Conference, and has since the date of its organization most efficiently and faithfully served as its Secretary-Treasurer without compensation and frequently at the cost of personal inconvenience, therefore be it

Resolved, That the National Drug Trade Conference hereby expresses its great regret at the necessity which has prompted Mr. Woodruff to decline re-election to the office of Secretary-Treasurer, and greatly recognizes the fact that his unselfish and efficient services in that office and his wise and timely counsels have contributed greatly to the success of the Conference and to its present high standing among national Drug Trade organizations, and be it further

Resolved, That the members and delegates of the National Drug Trade Conference hereby individually and collectively express their grateful thanks to Mr. Woodruff for his past valuable services, and unite in wishing him a long-continued, prosperous and happy life.

The Conference then adjourned.

SAMUEL C. HENRY, *President*.
W. J. WOODRUFF, *Secretary*.

CORRESPONDENCE

INTERESTING STUDIES AND FACTS OF DRUG MARKET CONDITIONS.*

The writer of the article evidently has submitted opportunities of informing himself as to the conditions of drugs and chemicals throughout the world, and his article is both accurate and informing.

We find that the Crude Drugs that are being offered by Germany are mostly Crude Drugs that were probably gathered before or in the early stages of the War, and many of them are of foreign production, chiefly from South America, showing quite clearly that the offers are from stocks on hand at the breaking out of the war. It is a rather interesting circumstance that we have been able to send orders for several thousand dollars' worth of goods recently to Hamburg for South American Crude Drugs that we cannot at present obtain by direct shipment. We also sent an order to Hamburg recently for Gum Asafetida, a product of Persia. The further fact that a large number of the Crude Drug Products grown in Germany have been forbidden export is another proof that nearly all their offerings of Crude Drugs are of old stocks. The supplies that may be in Austria-Hungary are not definitely known as the communication between Trieste and the Hinterland is still very bad. Some Chamomile Flowers, however, are being shipped from the Adriatic Ports or through Italian Ports and also a very considerable quantity of Insect Flowers. Communication between the ports of shipment and the Hinterland seems to be not entirely interrupted, but spasmodic, and therefore no calculations can be based on production.

As the writer of the other article rightly observes, the conditions in the Orient are perhaps more largely due to transportation and economic disturbances than to lack of production. The writer was told some time ago that there are no circulating mediums at all in Persia and therefore it was most difficult to arrange for transportation by the usual method of camel trains in that country. The scarcity of its products would seem to confirm the truth of this statement.

The writer differs from the statement made in the other article to the effect that the regulations of the Government make the sale of Ethyl Alcohol nearly prohibitory. This statement is apt to create a wrong impression. It is a very easy thing and there is no difficulty whatever for the retail druggist to purchase Alcohol for strictly legitimate purposes. Furthermore, the method that the Government has adopted for controlling the use of Alcohol is so wisely devised, that while in the opinion of the writer, it is efficient, it causes the least possible trouble. It is true that at the moment of writing Alcohol is a very scarce article due to various causes, but that is an entirely different matter from a difficulty in buying Alcohol for legitimate purposes.

High prices have always a tendency to increase production. The restoration of peace and order will have a very important effect in stabilizing exchange and in improving transportation conditions throughout the world. It is the writer's opinion that many goods from the Orient, especially such as are produced in Beloochistan, Afghanistan and Persia will be obtainable at greatly reduced prices after the declaration of peace and the restoration of order, but this may not be either to-morrow or next day.

It is almost certain that unless there is a financial collapse in Europe, the demands made upon America will be so persistent that there will be for a year or two at least a continued pressure to obtain labor, even at the present high rates. In considering the financial condition of Europe it must be borne in mind that concessions have been made, especially to England and France, of territorial supremacy that more than compensate those countries for the financial cost of the War, although, of course, nothing can compensate for their terrible suffering and

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* In order to present viewpoints on the significance of prevailing market conditions, Mr. Harry B. French, President of Smith, Kline & French Company was asked for his opinion, and the *substance* of the editorial, "The Significance of Present Drug Market Conditions," submitted to him for comment. A few changes were made in the editorial and these may account for the slight difference in viewpoint on the alcohol situation. The readers will value these interesting contributions by leading authorities.—THE EDITOR.

loss of life. Therefore, for the two great countries of Europe it is rather a question of tiding over immediate difficulties.

It looks now as if the danger in the world and certainly in this country of radical control of labor was over. The conservative element in labor will certainly carefully guard the interests of the laboring classes, and their broad outlook and conservative action can be relied upon to pursue measures that will tend to the public good.

PHILADELPHIA, January 6, 1920.

[Signed] HARRY B. FRENCH.

EDITOR:

Mr. England's editorial on coöperation contains elements of hope, for it may be possible in this way to secure reforms beneficial to professional pharmacy and to the sick without entering into entangling alliances.

Lest I may be regarded as a pessimist, I have confidence in the desire of the average man to give the best that is in him; when the contrary obtains, it is due to the glimmer of a super-mercenary goal obstructing a proper course.

In what direction is coöperation to be centered? Unless it results in a benefit to the ultimate consumer it may be regarded as a conspiracy. So, let us begin along fair lines, by asking the Association of Manufacturing Chemists to coöperate with us in serving the public well, by the discontinuance of marketing "reduced iron, black, 60 percent" also "reduced iron, containing sulphides in excess U. S. P. requirements."

We should seek coöperation from the Association of Pharmaceutical Chemists to discontinue leading unsuspecting pharmacists astray by offering them "elixir iron, quinine and strychnine," containing only 2 grains of quinine per fluidounce. I doubt if any pharmacist ever has a demand on prescription for such an elixir.

The coöperation of the Wholesale Druggists Association should be sought by requesting its members to furnish drugs to druggists, on orders for drugs under U. S. P. or N. F. titles, and not to assume that druggists are technicians who require material for technical purposes only.

I feel that you editors do not often come in touch with commercial affairs that, not infrequently, have a potent effect on the professional status of the pharmacist. A commercial representative can, in a few moments, undo much of the good a pharmacist has learned in college, and, he may do it without intending to do so.

Signed, LOUIS EMANUEL.

PITTSBURGH, PA.

COMMITTEE REPORTS

REPORT OF THE SECRETARY OF THE SECTION ON EDUCATION AND LEGISLATION AMERICAN PHARMACEUTICAL ASSOCIATION.*

Judging from past reports the objects of this Section seem to be very largely based on the study of conditions and legislation affecting the educational standards and advances and the practice of pharmacy in general, the ultimate object of the study being to bring order out of the varied conditions existing and to eventually standardize educational requirements and methods and to obtain greater uniformity in our laws. It is obvious, therefore, that, aside from the papers presented and the discussions resulting therefrom, a survey of the progress in education and legislation must be made in order that we may determine the advances made from year to year. To obtain this information statistics must be gathered from various sources and tabulated so that we may see in a concrete form just what advances have been made. It has been the duty of your Secretary to obtain this information and as a result this report will be largely statistical.

For information relative to the progress made, we have two sources from which to collect the data, namely the colleges and the State boards of pharmacy. Accordingly questionnaires

* Presented and referred to the Publication Committee, New York meeting A. Ph. A., 1919.

were sent to the deans of practically all colleges and to the secretary of every State board of pharmacy. The replies to these were not very general, in fact not over 50 percent of those to whom the letter was sent replied. The replies, however, were quite generally distributed and may therefore be considered fairly representative. In addition we have endeavored to collect as complete data as was possible, using every source of information available, but even so, no doubt some errors or omissions have been made.

Owing to the source from which the information was obtained the report may be readily considered under two subdivisions, namely, Educational Progress and Legislative Changes.

EDUCATIONAL PROGRESS.

In order to obtain the information upon which this part of the report is based, as before stated, a questionnaire was sent to the deans of the various Schools and Colleges of Pharmacy, requesting answers to the following:

QUESTIONNAIRE.

1. Give courses offered with length of each, degree given and entrance requirements for each course.
2. Give date when college opens and closes.
3. What changes in entrance requirements made this year? What, if any, changes for the year 1919–20?
4. Do you have any prerequisite requirements in your State, if so are these a part of the laws governing the practice of pharmacy or are they the result of rulings of the board of pharmacy? State briefly the requirements.
5. What suggestions have you to offer, which, in your opinion, will increase the value of the work of the Section?

Summarizing the tabulated facts from the various schools and colleges we find that sixty schools are reported.

On comparing degrees offered by the schools it will be noted that greater uniformity exists than formerly, though there is still room for improvement. Why some schools still persist in giving degrees of exceptional name and character for practically the same work other schools give one of the standard degrees is still a mystery. The only solution that seems worth while is that they sound more impressive and different from the others consequently make more of an impression on those unfamiliar with academic titles.

Fifty-one of the schools reported grant the Ph.G. degree for two years' work; forty-three give the Ph.C., degree for three years' work and twenty-seven confer the B.S. degree for four years' work. The B.Ph., and B.Phar., are granted by four schools, in some instances for two and in others for three years' work. The degree of Phar.D. is granted by six schools and should, as it does in most schools, represent real graduate work. It is, however, cheapened by being given for three years' of undergraduate work. The title of P.D. still survives after the repeated efforts that have been made to have it discontinued. Let us hope, therefore, that the one case may soon be discontinued. The degree of Phar.M. is granted by three schools and four grant the academic degrees M.S., D.Sc., and Ph.D. though this number probably does not include all that may do so.

For purpose of comparison we must keep in mind that the data, included in the first part of this report, was compiled from reports from sixty schools. Of this number forty-five are members of the American Conference of Pharmaceutical Faculties. Of the sixty schools listed twenty-five require high school graduation for admission to all courses and of this number twenty are members of the Conference. On first thought this appears to be a most creditable showing, but on further comparison we find that these twenty schools comprise but $33^1/_3$ percent of the membership of the Conference; a strong argument for active work in this field.

Another interesting feature in the study of these comparisons is the fact that of the twenty-five schools meeting the universal high school requirement, nineteen of the twenty-five are State university schools or colleges. Further that all of the twenty-five, with but one or two exceptions, are connected with or are a part of some university or college.

Twenty-three of all the schools require high school graduation, or the equivalent, for admission to the courses leading to the degrees of Ph.C., B.Phar., Ph.M., or B.S.

Reports of Schools and Colleges of Pharmacy.

Explanatory: "No." relates to the number of school reporting and is placed for convenience at the beginning and end of the table. Column "A" carries list of schools and names of States wherein located. "B." The schools checked in this column require high school graduation for admission to all courses. The total is 26 including Porto Rico which school makes no other report. "C." The schools checked in this column require high school graduation or equivalent for admission to the courses leading to the Ph.C., B.Phar. and B.S. degrees. The total is 24. "D." The schools checked in this column require two years of high school for admission to the two-year course leading to the degree of Ph.G. "E." The schools checked in this column will increase their high school requirements for admission on the sliding scale indicated. (It is probable that quite a number of other schools should be included in this column.) The figures 1, 2, 3, 4 and 5 have reference to the Questionnaire under "Educational Progress" of Secretary C. A. Dye's report. H. S. is abbreviation for high school.

No.	A.	B.	C.	D.	E.	1.	2.	3.	4.	5.	No.
1	Alabama—Polytechnic Institute, Dept. of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., 14 Carnegie units entrance to all courses	Opens Sept. 10 Closes June 5	Entrance requirements increased	State Board requires 2 yr. H. S.	No report	1
2	California—U. of Cal., College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C, 4 yr. B.Phar., H. S. graduation entrance	Opens Sept. 28 Closes June 4	No changes	No prerequisite	No report	2
3	U. of So. Cal., College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 4 yr. B.S., H. S. graduation	Opens Oct. 3 Closes June 10	No changes	No report	No report	3
4	Colorado—U. of Col., College of Pharmacy	V				3 yr. Ph.G., 4 yr. B.S., H. S. graduation	Opens Sept. 29 Closes June 16	No changes	No report	No report	4
5	District of Columbia—G. Washington U., National College of Pharmacy	V				3 yr. Phar.D., 4 yr. H. S.	No report	No report	No report	No report	5
6	Howard U., Pharmaceutic College	V				3 yr. Ph.C., H. S. graduation	Opens Oct. 1 Closes June 1	No changes	No prerequisite	Endeavor: Uniform laws for preliminary education and graduation, standardization of courses	6
7	Georgia—U. of Ga., School of Pharmacy			V		2 yr. Ph.G., 2 yr. H. S.	Opens Sept. 17 Closes June 17	No changes	3 yr. practical experience or graduation school of pharmacy or medicine and Board examination	Standardization of curricula and state laws covering entrance requirements and prerequisite	7
8	Mercer U., School of Pharmacy		V			2 yr. Ph.G., 2 yr. H. S. 3 yr. Ph.C., 4 yr B.S., 4 yr. H. S. for latter two degrees		No changes	Same as preceding	No report	8

9	Southern College of Pharmacy				2 yr. Ph.G., 1 yr. H. S.			Same as preceding	No report	9
10	Illinois—U. of Ill., School of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., H. S. graduation	Opens Sept. 30 Closes June 11	No changes	Prerequisite, graduation at least 2 yr. course	No report	10
11	Indiana—Purdue U., School of Pharmacy	V			2 yr. Ph.G., 4 yr. B.S., H. S. graduation	Opens Sept. 10 Closes June 9	No changes	As preceding. Law defines a school in good standing	No report	11
12	U. of Notre Dame, College of Pharmacy		V	V	2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C, 4 yr. B.S., 4 yr. H. S. for latter degrees	Opens Sept. 20 Closes June 10	No changes	As preceding	No report	12
13	Valparaiso U., School of Pharmacy		V	V	2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation for latter	Opens Sept. 23 Closes May 24	No changes	As preceding	No report	13
14	Tri-State College of Pharmacy				2 yr. Ph.C., 1 yr. H. S.		No report	As preceding	No report	14
15	Iowa—U. of Ia., College of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation all courses	Opens Sept. 20 Closes June 15	No changes	Prerequisite law, requiring graduation before registration as pharmacist	Higher standards for entrance and prerequisite laws	15
16	Highland Park College of Pharmacy		V	V	2 yr. Ph.G., 15 counts for entrance, 3 yr. Ph.C., H. S. graduation	Opens Sept. 9 Closes May 23	No changes	As preceding	No report	16
17	Kansas—U. of Kansas, School of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation	Opens Sept. 16 Closes June 15	No changes	Graduates of the school may register without State Board exam., on completion of term of practical experience	H. S. graduation requirement; greater coöperation between colleges and boards of pharmacy	17
18	Kentucky — Louisville College of Pharmacy		V	V	2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. H. S.	Opens Sept. 27 Closes June 4	No report	No report	No report	18
19	Louisiana—Tulane U., School of Pharmacy				2 yr. PhG., 3 yr. H. S., 3 yr. work and 1 year additional with baccalaureate degree Phar.D.	Opens Sept. 29 Closes June 9	No changes	No prerequisite law	No report	19
20	Maine—U. of Me., Dept. of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation for all	Opens Sept. 16 Closes June 17	No changes	No report	No report	20

No.	A.	B.	C.	D.	E.	1.	2.	3.	4.	5.	No.
21	Maryland—U. of Md., College of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., H. S. graduation for both	Opens Sept. 30 Closes June 1	Admission, 4 yr. H. S.	Prerequisite approved by Association and Boards and will be introduced	Standardize courses and entrance requirements; better understanding between students of related departments	21
22	Massachusetts—Mass. College of Pharmacy			V		2 yr. Ph.G., 3 yr. Ph.C., 2*yr. H. S.	Opens Sept. 18 Closes May 18	No changes	No prerequisite	No report	22
23	Michigan—U. of. Mich., College of Pharmacy	V				3 yr. Ph.C., 4 yr. B.S., H. S. graduation	Opens Sept. 20 Closes June 24	No changes	No prerequisite	Continue efforts to raise standards in all states	23
24	Minnesota—U. of Minn., College of Pharmacy	V				3 yr. Ph.C., 4 yr. B.S., H. S. graduation, M.Sc. atfer 1 year's work based on B.S., D.Sc. 2 yr. work	Opens Sept. 24 Closes June 27	New requirements for admission, certain basic subjects	New prerequisite law; each additional year of college counts for a year of practical experience see Legislative report	Every possible educational propaganda; prerequisite laws in every state with preliminary educational qualifications	24
25	Mississippi—U. of Miss., School of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., H. S. graduation	Opens Sept. 23 Closes May 29	No changes	No report	No report	25
26	Missouri—St. L. College of Pharmacy		V	V		2 yr. Ph.G.,B.Ph., both 2 yr. H.S.,3 yr.Ph.C., H. S. graduation	Opens Oct. 6 Closes May 18	No changes	No prerequisite law	Continued propaganda for prerequisite legislation	26
27	Montana—U. of Montana, School of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation	Opens Sept. 16 Closes June 9	No changes	No report	No report	27
28	Nebraska—U. of Neb., College of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation	Opens Sept. Closes June	No changes	New prerequisite law: 4 yr. H. S., graduation from 2 yr. course; graduates 4 yr. course registered without examination	No report	28
29	Creighton U., College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., H. S. graduation	Opens Sept. 17 Closes June 5	No changes	Same as preceding	No report	29
30	New Jersey—College of Jersey City, Dept. of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Pharm.M., 3 yr. Ph.C., 4 yr. H. S.	Opens Sept. 18 Closes May 5				30
31	New Jersey College of Pharmacy					2 yr. Ph.G., 1 yr. H. S.	Opens Sept. 15 Closes May		No report	No report	31
32	New York—Union U., College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. B.Sc., both 4 yr. H. S.	Opens Sept. 22 Closes June 7	No changes	Prerequisite law, graduation 2 yr. course not less than 2 yr. H. S. requirement	Standardizing of work in schools	32

33	Brooklyn College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., additional year for Phar.M., 3 yr. Ph.C., H. S. graduation and degree of Ph.G.	Opens Sept. 20 Closes May 15	No changes	Same as preceding	No report	33
34	Buffalo College of Pharmacy		V	V		Same as preceding	Opens Sept. 23 Closes June 5 Ph.G. opens Oct. 8	No changes	Same as preceding	No report	34
35	Columbia U., College of Pharmacy of City of N. Y.		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation, Phar.D. after completion 2 yrs. work based on B.S.	Opens Sept. 26 Closes May 13 Regular U. courses close June 4	No changes	Same as preceding	No report	35
36	Fordham U., College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 4 yr. B..S , 4 yr. H.S., Phar.D. 4 yr. graduate work based on B.S.	Opens Sept. 23 Closes June 10	No changes	Same as preceding	Raise entrance requirements and make this and attendance an essential of licensing examinations	36
37	North Carolina—U. of N. C., School of Pharmacy	V				2 yr. Ph.G., 3. yr. P.D., requires practical experience, Ph.C. (no practical experience required), H. S. graduation for all courses	Opens Sept. 10 Closes May 30	No report	No report	No report	37
38	North Dakota—N. Da. Agr. College, School of Pharmacy		V	V	H. S., 1923	2 yr. Ph.G., 2 yr. H. S., 4 yr. B.Sc., 4 yr. H. S.	Opens Sept. 29 Closes June 15	By 1923 H. S. graduation required	Graduation prerequisite	Standardization of pharmacy courses	38
39	Ohio—O. State U., College of Pharmacy	V				2 yr. Ph.C., 4 yr. B.Sc. in Pharm., H. S. graduation, both courses	Opens Sept. 16 Closes June 16	No changes	Prerequisite, graduation from school conforming to A. C. P. F. requirement; H. S. graduation Jan., 1920	No report	39
40	Western Reserve U., School of Pharmacy		V	V	4 yr. H. S., 1920	2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., H. S. graduation	Opens Sept. 22 Closes June 17	After Jan., 1920 H. S. graduation	Same as preceding	No report	40
41	O. No. U., College of Pharmacy		V	V	4 yr. H. S., 1920	2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. B.S., both latter H. S. graduation	Opens Sept. 29 Closes May 26	No changes	Same as preceding	Discontinuance of short courses	41
42	Cincinnati College of Pharmacy			V	4 yr. H. S., 1920	2 yr. Ph.B., 2 yr. H. S.		No changes	Same as preceding	No report	42

No.	A.	B.	C.	D.	E.	1.	2.	3.	4.	5.	No.
43	Oklahoma—U. of Okla., College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. B.S., 4 yr. H. S.	Opens Sept. 16 Closes June 10	No changes	Prerequisite beginning 1921, 1 yr. college, 1922 2 yr. minimum 7 units' entrance requirements	No report	43
44	Oregon—Ore. Agr. Col., School of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation all courses	Opens Sept. 22 Closes June 14	No changes	Applicants for registration 1 yr. H. S., 4 yr. practical experience, 2 yr. latter may be deducted if attended school of A. C. P. F.; after 1920, 1 yr. college; after 1921, graduation	Raise entrance requirements and standardize work of colleges	44
45	No. Pac. College of Pharmacy		V	V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. H.S.		No changes	Same as preceding	No report	45
46	Pennsylvania — Phila. College of Pharmacy		V	V	H. S., 1923	2 yr. Ph.G., 2 yr. H. S., 3 yr. based on completion Ph.G. course and 1 yr. postgrad. Phar.B., 3 yr. Ph.C., 60 counts or 4 yr. H. S., 4 yr. B.S., 4 yr. H. S., Phar.D. 2 yr. postgraduate based on B.S. course	Opens Sept. 22 Closes June 2	3 yr. H. S., 1921 4 yr. H. S., 1923	Prerequisite, graduation from schools meeting A. C. P. F. requirement	No report	46
47	U. of Pittsburgh, College of Pharmacy		V	V	H. S., 1923	2 yr. Ph.G., 2 yr. H. S., 3 yr. Ph.C., 4 yr. Phar.D., both require H. S. graduation	Opens Sept. 30 Closes June 13	Same as preceding	Same as preceding	No report	47
48	Temple U., Dept. of Pharmacy		V	V	H. S., 1923	2 yr. Ph.G., 2 yr. H. S.		Same as preceding	Same as preceding	No report	48
49	South Carolina—School of Pharmacy, Medical College, State of S. C.			V		2 yr. Ph.G., 2 yr. H. S., 3 yr. Phar.D., based on the 2 yr. course	Opens Sept. 28 Closes June 7	No changes	Prerequisite, graduation 2 yr. course, recognition of schools by Board	No report	49
50	South Dakota—So. Da. St. Col. Agr., School of Pharmacy	V				2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation	Opens Sept. 21 Closes June 7	No changes	Prerequisite requires H. S. graduation and 2 yr. college; each year of college after 2 yrs. counted as practical experience in registration	No report	50

51	Tennessee—Vanderbilt U., School of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation all courses	Opens Sept. 29 Closes June 9	No changes	Prerequisite, H. S. graduation, 4 yr. practical experience or 2 yr. college and 2 yr. experience; a yr. of college equals a yr. of experience	No report	51
52	U. of Tenn., School of Pharmacy	V			2 yr. Ph.G., H. S. graduation	Opens Sept. 22 Closes June 2	No changes	Same as preceding	No report	52
53	Meharry College of Pharmacy			V	3 yr. Ph.C., 2 yr. H. S.	Opens Oct. 21 Closes May 8	No Changes	Same as preceding (seemingly entrance requirements do not agree—Editor)	No report	53
54	Texas—Baylor U., College of Pharmacy	V			2 yr. Ph.G., H. S. graduation	Opens Sept. 29 Closes May 28	College closed during 1918–1919	No prerequisite	Urge prerequisite legislation	54
55	U. of Tex., College of Pharmacy			V	2 yr. Ph.G., 2 yr. H. S.	Opens Oct. 1 Closes May 31	No changes	No prerequisite	Urge prerequisite legislation	55
56	Virginia—Medical College of Va., School of Pharmacy			V	2 yr. Ph.G., 2 yr. H. S.	Opens Sept. 17 Closes June 1	1920, 3 yr. H. S. 1921, 4 yr. H. S.	After April, 1922, all registrants must be graduates school of pharmacy approved by Board	No report	56
57	Washington—U. of Wash., College of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr.B.S.,5 yr.M.Sc., H. S. graduation for all; new course—2 yr. in college business administration in conjunction with 2 yr. course	Opens Oct. 1 Closes June 15	No changes	Prerequisite all candidates before Board must be H. S. graduates, graduates 2 yr. pharmacy course; yrs. in excess of two at college may be deducted from practical experience required	Increase requirements of education, time at school, prescription training	57
58	Wash. St. Col., School of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.Sc., H. S. graduation	Opens Sept. 15 Closes June 10	No changes	Same as preceding	Urge standardization of requirements	58
59	West Virginia—U. of W. Va., School of Pharmacy	V			2 yr. Ph.G., 3 yr. Ph.C., 4 yr. B.S., H. S. graduation	Opens Sept. 15 Closes June 15	No changes	No report	High school graduation as entrance requirement	59
60	Wisconsin—U. of Wis., Dept. of Pharmacy		V	V	2 yr. Ph.G., 2 yr. H. S., 4 yr. B.Sc. in Pharm. requires H. S. graduation also graduate instruction based on B.Sc. leading to M.S. and Ph.D.	Opens Oct. 1 Closes June 15	No changes	Board requires 1 yr. H. S. for registration	Section Education and Legislation should be divided into 2 sections	60

EDITOR'S NOTE.—In order to conserve space, these tabulations were made; no reports were made for Atlanta College of Pharmacy, New Orleans, Rhode Island College of Pharmacy, Toledo University College of Pharmacy and Queen City College of Pharmacy; if these were added it would make up the number "65," by Secretary C. A. Dye. It will also be noted that other schools, evidently, did not report.

Only two schools, the University of Maryland College of Pharmacy and Alabama Polytechnic Institute, reported that they had raised their entrance requirements and in both instances high school graduation is required. A number of other schools reported that they have made provision for a gradual raising of standards to high school graduation. These schools will be listed later on in the report. It might be added that of these nine schools, five will go on a high school basis January 1, 1920 and the remaining four will reach this basis in 1923. Thirty-two schools require two years of high school for admission to the two year courses.

LEGISLATIVE CHANGES

A questionnaire covering certain specific questions was sent to the Secretary of every State Board and of these about half replied. In explanation of this fact it is possible that the Legislature in some states did not convene this year or that proposed laws were defeated and it was therefore deemed unnecessary to make any report. However, the replies received were quite generally distributed and may, therefore, be taken as fairly representative of conditions and the progress being made in pharmaceutical legislation.

The following questions were included in the questionnaire sent out, an effort being made to obtain data on those points of particular interest to this Section.

1. What new legislation was enacted in your State this year affecting the practice of pharmacy? If possible send copies of the new or amended laws.
2. Do you have any prerequisite requirements, if so what are they and when adopted?
3. Are the prerequisite requirements a part of the law regulating the practice of pharmacy or are they the result of Board rulings?
4. Have you any suggestion to offer the Committee or the Section, which in your opinion will help to make the joint session of the Boards of Pharmacy, the American Conference of Pharmaceutical Faculties and the Section more helpful to the members and the practice of pharmacy in general?

In reporting their replies they will be arranged in the order given in the questionnaire and according to states. Owing to the length of this report it will not be possible to go into any great detail in summarizing the features of the laws and in other instances owing to the length of the laws even a brief synopsis is hardly possible.

EDITOR'S NOTE.—California, Maine, New Mexico, South Dakota, Texas, Vermont, Virginia and Washington report no changes. States not reporting are omitted.

ARKANSAS.—A number of bills aiming to improve the practice of pharmacy in the State were introduced, but were defeated. The Board, however, is untiring in its efforts and we are hopeful of better things in the future. As a suggestion, why not recommend to the Bureau of Internal Revenue, the licensing of all drug stores, in charge of registered pharmacists, in each State, prerequisite to the possession, use, sale of ethyl alcohol and of narcotics, restricting all orders and prescriptions for same to the district in which they were issued?

COLORADO.—Several amendments to existing bills failed of passage. We are convinced, by long experience on the Board, that graduation from a college of pharmacy should be required of all candidates for registration.

ILLINOIS.—New requirements for registration of schools and colleges, recently sent out by the Department of Registration and Education, are quite broad and inquiring in scope, but are too long to be reviewed in this report.

INDIANA.—New prerequisite law enacted by the last session of the General Assembly, effective January 1, 1920. Graduation from a recognized college is required and such school must demand as a minimum the satisfactory completion of at least two years of high school for admission. Further, the school must meet the requirements of the A.C.P.F., and the work as outlined in the Syllabus.

Persons registered as assistants or apprentices at the time of passage of the bill are exempt. Further exemptions include unregistered assistants, prescription clerks and owners, who have been actively and continuously engaged in business for ten years prior to July 1, 1919, in a town of less than three thousand inhabitants. To such persons permits may be issued under certain restrictions; permits to be renewed every two years.

IDAHO.—New pharmacy act in which the enforcement of the pharmacy laws is placed,

under a Commissioner, in the Department of Law Enforcement. The Commissioner apparently has the power to appoint the Board members; they must be registered pharmacists. The Board is empowered to define what shall constitute a school, college, university or department of a university; has power to establish standards of preliminary education deemed requisite to admission to a school, college or university and to require satisfactory proofs of the enforcement of such standards. The fees for licensing, registration, etc., are specified, as well as drugs to be sold by registered pharmacists, with certain exemptions for physicians. The law also permits assistant pharmacists to conduct a store in a village of not more than two hundred inhabitants when there is no pharmacist within three miles of the village. Permits of credit for college work as practical experience but not to exceed two years. Graduates of a three-year course of nine months each may be licensed without an examination. Permits of reciprocal registration, makes it unlawful for unauthorized persons to use the title of pharmacist, exempts pharmacists from jury service, restricts the sale of poisons, etc.

IOWA.—Pharmacy law amended so that an annual registration of two dollars may be collected, one dollar of this to go to the Iowa State Pharmaceutical Association to be used for the advancement of the art and science of pharmacy. Another amendment changes the reciprocal registration fee from ten dollars to the fee charged by the State from which the application is issued. Another amendment relates to the salary and traveling expenses of the Secretary of the Pharmacy Commission.

MASSACHUSETTS.—A new law entitled "regulating the sale of alcohol" is in reality a law regulating and licensing the sale of methyl alcohol, denatured alcohol, or any preparation used in manufacturing or for commercial purposes. All such products must have red label and other regulating features, license to be issued by Boards of Health and to be renewed annually.

MINNESOTA.—A new prerequisite law enacted by the last Legislature effective on passage. It requires at least two years of successful work in a recognized college of pharmacy and two years of practical experience for registration. One or more years of additional and completed college work may be counted, but this is not to exceed three years. Law does not require preliminary high school training, but provides that the Board may conduct an examination to test candidates' preliminary educational qualifications.

NEBRASKA.—New prerequisite law but unable to obtain a copy.

NEW JERSEY.—Amended law and prescribes the usual features of how the Board shall be appointed, length of service, provides for reports to the Governor and State Association, who shall sell drugs and conduct a store, requirements to be met by those applying for registration including four years of practical experience. The law provides that a credit of not to exceed two years may be granted to graduates from a school of pharmacy complying with the rules and regulations of the Board. The applicant must procure from the Commissioner of Education a certificate showing that he has a preliminary education equivalent to the standard established by the Board. The educational requirement of the Act becomes operative September 1919. Provision is made for provisional registration of those who served in the Army or Navy in the recent war. Further, all stores are required to display on a sign so as to be read from the outside the name of the registered pharmacist in charge; certificates are renewed every two years. Amendments to the poison law were also passed.

NEW YORK.—No changes except an amendment providing for the issuance of a junior pharmacist's license. This makes certain requirements as to the applicant's character and further exacts that he must have had fifteen academic counts prior to January 1, 1918, before beginning his first year in school; after this date thirty counts are required. Further, he must have studied pharmacy as outlined in the Syllabus two years and received his diploma as a graduate and had two years of practical experience under prescribed conditions all of which experience must have been in a pharmacy of New York State.

NORTH CAROLINA.—Board of Pharmacy has adopted a definition of what constitutes a reputable school of pharmacy, which requires that the institution shall be either incorporated or a department of an incorporated educational institution or a state university. The course of instruction must include oral lectures, personal laboratory work, recitations and reviews, work *in absentia* excluded. The institution must require a minimum entrance requirement of two years of high school and not less than 1200 hours of instruction. The subdivision of this is practically that given in the Syllabus. Further, requires that the certificate from the school

must show at least nine months of attendance and thirty-six weeks of actual time devoted to the course of instruction.

Also passed an Act to obtain reports on persons infected with venereal diseases. This makes it unlawful for any one except a registered physician to prescribe or give away any medicine for the treatment of venereal diseases. Druggists, or others, who sell at retail any such remedies are required to report same on special blanks to the Bureau of Venereal Diseases.

OHIO.—Pharmacy law amended to require all applicants for registration to be citizens of the United States and that on and after January 1, 1920 all applicants for registration must present as preliminary educational requirement a diploma from a legally constituted high school, normal school or academy issued after four years of study, provided, however, in the absence of these qualifications the Entrance Examiner may examine the applicant in such branches as are required. A new law provides for permits to be issued to registered pharmacists and assistant pharmacists from other states, who have been honorably discharged from military service of the United States while at war with Austria-Hungary and Germany. These permits are issued on proof of previous registration and are good for six months. Later the candidate may apply for reciprocal registration. A stringent measure governing the sale of alcohol, alcoholic liquors and other products containing them was passed.

PENNSYLVANIA.—Pharmacy law amended to permit of reciprocal registration, provided the applicant shall produce evidence of his having had the required secondary and professional education and that the state granting the original certificate reciprocates with this state. It also provides that persons registered in other states prior to the enactment of the law shall be required to meet only the requirements in force at that time. It further provides for the Board to send delegates to the convention of the National Association of Boards of Pharmacy and permits the Board to join the Association. The bill also provides for the issuance of permits to honorably discharged soldiers and sailors to practice six months and then subsequently register by reciprocity. A further amendment permits the sale of poisons for technical use provided that the article is labeled for technical use and not intended for medicinal use and is sold in compliance with the provisions of a section of the original law.

SOUTH CAROLINA.—A law enacted to prohibit the sale and purchase of extracts, tonics, bitters, drugs and medicines or compounds containing alcohol which may be used as a beverage. The purchaser is required to sign a certificate stating "I have this day purchased from.... the following preparation to be used as a medicine, toilet preparation or flavoring extract and will not myself use or allow any of same to be used as a beverage." Violation by anyone is a misdemeanor and upon conviction liable to a fine of not less than $100.00 nor more than $500.00 or imprisonment for from three months to one year, subsquent offense punishable by imprisonment from one to two years.

TENNESSEE.—A new law enacted which is one of the most progressive laws we have seen. A few of the featues may be mentioned. At least three of the five members must be college graduates, the selection of members for appointment is made from recommendations by the State Association of twenty names selected from the congressional district; these are then voted upon by mail, by every registered pharmacist in the State, the five names receiving the highest vote are then sent to the Governor and from these the appointment is made. There is an annual registration fee; from this not to exceed $1.00 is turned into the State Association for the advancement of the art and science of pharmacy. Such payment automatically makes each registered pharmacist a member of the State Association. Provision is made for the issuance of permits to drug dealers in small towns having a population of 500 or less and where conditions do not warrant the employment of a registered pharmacist. Such dealers may perform all the duties of a registered pharmacist, but only in the town for which the permit was granted. The Board is empowered to enforce all laws pertaining to the manufacture, sale and distribution of drugs, chemicals and poisons. As requirement for registration a preliminary education equivalent to high school graduation is required. Four years of practical experience is required for registration and in the case of assistants one year of college work may be substituted.

From some sources we have heard that college work could be substituted for the practical experience required from all applicants, but we could not find such a statement in the law. The law further provides that it shall be a misdemeanor not to have in the store the latest revision of the U. S. P. and N. F. These are a few of the many features of the law.

WISCONSIN.—Law increased dues for registration for pharmacists to two dollars and assistants to one dollar.

By a ruling of the Board, effective July 1, 1919, the preliminary educational requirements for those registering as pharmacists were increased to two years of high school. The State Association, at its last meeting, went on record as favoring a gradual increase in the preliminary education requirement to high school graduation, and to require college graduation from a recognized school for registration.

The following states now either have laws or Board rulings requiring college graduation as a prerequisite for registration: Idaho, Illinois, Indiana, Iowa, Minnesota, Nebraska, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma (effective 1921–22), Oregon, Pennsylvania, South Carolina, South Dakota, Virginia and Washington.

[Signed] C. A. DYE, *Secretary.*

REPORT OF THE PHARMACEUTICAL SYLLABUS COMMITTEE.*

AUGUST 1919.

The Pharmaceutical Syllabus Committee respectfully submits the following report.

A well attended meeting was held at the Congress Hotel, Chicago, Illinois, on August 14, 1918, at which plans for the preparation of the third edition of the *Syllabus* were worked out. At this meeting it was finally decided to prepare a syllabus for a third year course leading to the degree of Pharmaceutical Chemist, in which a part of the work shall be required and a part elective by the colleges offering the course. The required subjects are to be advanced manufacturing pharmacy, bacteriology, and advanced analytical chemistry; the elective subjects are to be advanced work in dispensing, pharmaceutical jurisprudence, micro-analysis, advanced botany, physiological testing, advanced organic chemistry, chemical technology, and urine analysis.

Work on the revision has progressed very satisfactorily in spite of the disturbed conditions due to the war, and it is expected that the third edition will appear early in 1920, according to schedule.

The Committee is made up of twenty-one members, seven of these representing the American Pharmaceutical Association, seven the Conference of Pharmaceutical Faculties, and seven the Association of Boards of Pharmacy; thirteen states are represented in the membership.

New members of the Committee have been appointed during the year as follows: Edsel A. Ruddiman, of Tennessee, from the Conference of Pharmaceutical Faculties, and George W. McDuff, of Louisiana, from the Association of Boards of Pharmacy. The following sub-committees have charge of the three principal sections of the *Syllabus:*

Pharmacy.—W. H. Rudder, *Chairman;* W. C. Anderson, Albert Bolenbaugh, G. C. Diekman, W. G. Gregory, H. B. Mason, C. M. Snow.

Chemistry.—J. A. Koch, *Chairman;* T. J. Bradley, E. G. Eberle, G. W. McDuff, O. W. Osterlund, E. A. Ruddiman, C. H. Skinner.

Materia Medica.—H. H. Rusby, *Chairman;* M. C. Beebe, G. M. Beringer, John Cully, E. E. Faulkner, C. B. Lowe, E. L. Newcomb.

Each of the associations represented on the Committee regularly contributes twenty-five dollars per year towards the expense of the Committee's work, and it is requested and recommended that these contributions be continued. When the second edition of the *Syllabus* was issued, the Committee was in debt for several hundred dollars, but this indebtedness has now been paid, and a balance is now accumulating in the treasury which it is hoped will prevent a similar indebtedness when the third edition is issued.

The Committee realizes the difficulty of its task and that it can only hope to make each edition of the *Syllabus* show an improvement over the preceding edition; it is believed that the coming third edition will show a marked improvement over the second one.

[Signed] THEODORE J. BRADLEY,
Chairman for the Committee.

* Presented at Second General Session, A. Ph. A., New York meeting, 1919. Request for contribution complied with and referred.

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

ABSTRACT OF THE MINUTES OF THE SESSIONS HELD IN NEW YORK CITY, AUGUST 28 AND 29, 1919.

In the absence of the officers of the Section, last year's President, Miss Zada M. Cooper, called the first session of the Women's Section to order Thursday, August 28, at 10:30 A.M. The presiding officer announced that it would be necessary to elect a temporary chairman, and Mrs. John Culley, of Ogden, Utah, was nominated and elected.

The invocation was delivered by the Rev. Mr. Schuchard. Mrs. Robert S. Lehman, of New York City, Chairman of the Ladies' Committee, delivered the address of welcome, and this was responded to by Mrs. J. Leyden White, of California.

Charles H. LaWall, President of the American Pharmaceutical Association, spoke in part as follows:

I believe you have an important part in the work of our Association and there are great possibilities for this Section. Pharmacy needs the concerted effort of every one of its component parts, or units, in order to achieve greatest success. We must realize that in a federation women's work is bound to be an important factor. The hospital pharmacies are attractive to women pharmacists and therein they have been eminently successful. More women pharmacists than ever before are now engaged in drug stores; however, the hospital pharmacies are particularly well suited for the work of women, and, in late years, nearly all hospitals have shown a preference for them. There is opportunity for improvement in the conduct of pharmacies in some of the hospitals, not only greater care must be used in dispensing, but better records may be made in the handling of narcotics and alcoholics. The work of the pharmacy can also be extended, making this a better and larger service. Pharmacists in hospitals should be selected with great care in judgment of their qualifications and there are possibilities of raising the standard of education and training so that these pharmacists will advance the status of pharmacy and benefit the practice of pharmacy in general.

Dr. J. H. Beal presented the following paper:

WHY THE WOMEN'S SECTION?

Since the American Pharmaceutical Association provides a section for the consideration of technical scientific subjects, a section for the consideration of commercial problems, a section for dispensing problems, and other sections for the various other special features of pharmaceutical practice, the questions are sometimes asked, What is the necessity for a Women's Section? and, Why cannot women who are interested in pharmacy find full scope for their activities in attending and taking part in the proceedings of the other Sections?

To these questions there are a variety of answers.

The first answer is that it is one of the purposes of this Section to openly emphasize the work of women in pharmacy, and to afford the American Pharmaceutical Association the means of recognizing women's pharmaceutical activities in a more public and emphatic way than could be accomplished by merely granting their right to general membership.

That women realize a necessity for some concrete recognition of this kind is attested by the various independent associations of women pharmacists that have from time to time been projected. Those who entered these independent organizations were eligible to membership in the regular pharmaceutical organizations, but they realized, and justly so, that the sisterhood of pharmacy needed some means of expression beyond that which they could receive in organizations created by and mainly conducted by men.

The women members of the American Pharmaceutical Association are entitled to attend and take part in the proceedings of any or all of the other sections, but no matter how cordially they are received there, they must always have a consciousness that they are regarded more or less in the light of visitors, welcome visitors no doubt, but still visitors. In this their own Section they can feel at home, and here the male member of the species if he is present must accept the rôle of casual attendant.

A second reason for the existence of such a separate section is that there are questions connected with women's work in pharmacy which affect women primarily and directly as such, and upon which they should pass independent judgment.

What should be the general nature of women's employment in the drug store, what classes

of goods in the retail drug stock should women be expected to handle, and what goods should they be excused from handling, what should be the length of the hours of their service, should they be required to work on Sundays or be exempted, how should the rate of their compensation compare with the rate of compensation of male clerks?—these and others are questions in which women have a direct and primary interest and upon which they should voice their well considered conclusions independently, after which it will be appropriate for them to submit their conclusions, if necessary, to the general association.

We are living in a time when woman's right to participate in all the multifarious occupations of life is rapidly approaching universal recognition. That it has not been earlier recognized has not been due to the stubborn unfairness of the other sex, but to woman's own lack of assertiveness. She has been content to tag along after the chariot of the male and, indeed, has often voiced her preference for such secondary and subsidiary position.

Privileges cannot be accepted without assuming their attendant obligations. If women claim the new privileges, they must demonstrate their ability to stand alone and to think and act independently upon questions which peculiarly affect their interests. The opportunity for the independent voicing of their opinions upon such subjects is afforded by the Women's Section, while at the same time the other sections of the Association are open for their participation in the discussion of questions of common interest to both sexes.

A third important reason for the Women's Section is the fact that the annual meetings of the Association are largely attended by women who are not themselves members, for which the regular programs of the Associations provide no duties except attendance upon the functions commonly set down under the head of entertainments. While these attendants may not care to take part in the work of the regular Sections, yet many of them are averse to being considered as fit only for the diversion of theatre parties, card parties and the annual ball. Though not themselves qualified as pharmacists, they have a lively interest in the progress of pharmacy as a vocation, and are prepared by their influence and counsel to aid those of their sex who have adopted pharmacy as their life work.

The Women's Section affords these non-members the opportunity of a place where they can feel free to exercise their efforts in a helpful and constructive way. In this respect it plays the part of Women's Auxiliary, but it was thought wise to make it something more than a mere auxiliary by giving it an organic connection with the parent body in the form of a section coequal with the other sections.

A fourth reason for the Women's Section is that by its separate existence it has an opportunity and an incentive to emulate the other sections in securing new members for the Association.

The crying need of the American Pharmaceutical Association is a greatly increased membership. Many important projects are curtailed, and many others are unattempted, simply because the present membership of the Association is not sufficient to warrant such undertakings.

Experience has shown that the women of the Association are peculiarly successful in obtaining new members when they are willing to make the effort, and besides there are hundreds of women pharmacists who are not members of the American Pharmaceutical Association, but who would become such if they received an invitation from the Women's Section.

During the year the number of new members brought into the Association through the efforts of the Women's Section were equal to nearly half of the new members secured by all the other Sections combined.

Here is an opportunity which, if utilized, is of itself sufficient argument and excuse for the separate existence of this Section.

Many other equally good arguments might be offered for the existence of the Women's Section, but the preceding are some of the indications of its possible utility to women in pharmacy, and to the American Pharmaceutical Association. Many of the thoughtful members of the parent association regard this section as one of the most promising divisions of the Association and hope for its development to larger proportions and to greater activity than it has yet assumed.

To use an expression originally introduced as slang, but in a fair way to recognition as good English, "it is up to you" to show that woman's capacity for independent organization and for constructive work in pharmacy is a real and substantial entity and not an empty myth.

The Section expressed appreciation and thanks to President LaWall and Ex-President J. H. Beal, and the address and paper were referred to the Publication Committee.

The address of President Anna G. Bagley was read by Mrs. John G. Godding. It follows:

ADDRESS OF THE PRESIDENT OF THE WOMEN'S SECTION, A. PH. A.

To the women of the American Pharmaceutical Association I send greetings and good wishes, regretting sincerely that I am not able to be with you this year.

The past few years have not permitted the usual association activities, but it is needless to recall here our trials and sufferings of that period or the one great joy that in some slight measure compensated for its sorrows. None of us are blind to the great lessons taught to the world through the sufferings endured. The point of interest now is, how shall we profit by those lessons and keep the war won?

The American woman has always enjoyed a more exalted position than her sisters in other countries; she has exerted a powerful influence in religious, social and political life. In religion and social affairs, and especially in the home, she has been the dominant factor; her political influence until quite recently has been indirect. Her high ideals and her secure position in the home have been the source of that influence.

Some years ago, however, women began to realize that the usual activities in religious and social affairs did not meet the demand. There were changes taking place. New ideas and new ideals were making new conditions which called for organized effort if church and home were to be kept the center of inspiration and good influence. Organizations then began to grow and as the evolution progressed women were drawn into political affairs, first regarding educational matters only; then later, and now by degrees, they are being drawn into direct contact with political affairs, carried by a current which they are unable to resist, into which each woman must throw her effort if she would protect herself and her home.

The manner in which women answered the call to the colors and the results which they accomplished are conclusive proof of woman's ability to spread her good influence into broader channels without in the least lessening her interests in the home and social circles where she has so long been content to reign.

I say this new condition is a thing outside of and beyond our power to control; it affects the women of every other country as it does those of America and we must cope with it or be ourselves crushed and see all those things for which we have stood so valiantly put away.

Coming now to the more concrete case of the women in pharmacy, which does not only mean those women who have prepared themselves for the duties of the professional pharmacist, but all those who through their husbands, fathers or brothers look to pharmacy for a livelihood, as well as the woman pharmacist. Whatever touches that profession, whatever touches business in general, also touches these women. Therefore if they have recognized the call for public or semi-public service which has gone out to all women, it is their duty to put the first of that effort in the channel which leads to pharmacy, and the Women's Section, as I see it, was designed to be that channel.

Much of the progress toward modern ideals is delayed through lack of participants. There is many a woman whose reasoning is good, who is modern and progressive and who believes in this new cause of women to-day, but she hesitates to put her hand to the wheel because she has never done so; she is timid and fears criticism; I can sympathize with that woman, for I have felt the same way and do yet about some things. But where I have been able to overcome that feeling and given what I could to some public or business cause, there has come a satisfaction in having endeavored to push a good thing along and a feeling that I have been drawn out of myself. I am sure we have many women like that in our Section. They do not refuse their assistance because they do not believe in the work, but are perhaps not well posted upon A. Ph. A. affairs and are conscientious about undertaking it.

Let me say that no woman whose interests are in any way bound up in pharmacy is going to make any very serious errors in doing section work in the A. Ph. A. It is all plain drug store tactics. Just try it and see!

The only thing this section lacks to make it a great success is coöperation. Some men who are not in the A. Ph. A. are afraid of it because they think it is a "high brow" organization—whatever that may be—but it has been my pleasure to watch several men out of this class join

the A. Ph. A. and become, well—not only enthusiastic—but real A. Ph. A. fans. And the same thing will happen to the women once they get started to work in this Section.

Many do not understand just what we are driving at in this Section, and I cannot better state it than did Dr. J. H. Beal when he addressed the Women's Section at Nashville, when he said:

> "There is a work that you can do that cannot be done without you. We men feel that we are capable of handling the coarser, heavy work of the Association, but we believe that there is a finer quality of work that can be done by the Women's Section that you can better accomplish. We welcome you most heartily as our coadjutors in making the A. Ph. A. conserve the best traditions in pharmacy, and not to be only a conserver but a developer of what ought to be our common aim."

It has taken us some time to put our finger on that more delicate service but we feel sure we have solved that point largely by the program so ably planned by Miss Zada Cooper in her address last year. We have had many excellent suggestions for work, but I believe that was the first workable, concrete program set before us and I am grieved that my administration could not grasp its opportunity.

It may not be amiss to state that there are many grave dangers facing the drug business at present and I believe any work which this Section can do which will reach the laity will help decrease that danger. Publicity of the right sort directed to the laity would have a great value and if the Women's Section did nothing more in the coming year than operate a publicity bureau, the whole drug field would feel its effects. What little has been given to the laity has come from wrong sources and is, therefore, mostly wrong.

There have been many difficulties in the way of perfecting the organization of this Section, but I feel we are sufficiently well organized now to undertake the program mentioned above and with some hope of accomplishment. War work has taught many women never to have an idle moment and if we could have a few of those moments devoted this next year to Section work, a wonderful good could be accomplished. If each would do her bit, the work could be carried on without burdening any one.

I have read over the proceedings of all our meetings and with what acquaintance I have with present conditions in the drug business, I feel that the very comprehensive program which was submitted to you last year, and which war conditions prevented being carried out, will be the best program we could devise.

I would therefore recommend that we re-adopt the recommendations in Miss Cooper's address:

1. That our Press Committee be instructed to get brief articles about the opportunities for women in pharmacy into high school magazines.
2. That our Outlook Committee be instructed to reach club women in whatever way seems most feasible with similar information.
3. That our Secretary be directed to communicate with the President of each Women's Auxiliary of the various state pharmaceutical associations urging each woman in her own locality to make an effort to reach high school girls individually and through local women's clubs, or druggists' associations.

I would further recommend that each woman present pledge her assistance when asked, responding promptly, and to carry the message of the Women's Section to all her associates in pharmacy.

I would recommend that all women of the A. Ph. A. read the Association Journal.

I would recommend that each woman seek members for the A. Ph. A., with a full knowledge that the greater benefit goes to the member in the possession of his membership than to the Association.

Heretofore the retiring President has made the appointments for the following year in order that the Section might have the benefit of her experience. Last year we adopted a new set of By-Laws and I am uncertain whether this procedure is to be continued under the new law. If so, I will gladly make these appointments.

I wish to thank the officers and members who have responded to my call for help, and especially to Miss Cooper, who has so kindly consented to look after my duties during the convention.

I have appreciated the honor of being your President and shall always regret that circumstances over which I had no control prevented making this past year a record one for accomplishments. ANNA G. BAGLEY.

The address of President Anna G. Bagley was referred to a committee of Miss Adelaide Rudolph, of New York, and Mrs. John G. Godding.

Mrs. John F. Hancock, Honorary President of the Section, expressed her appreciation of the honor conferred.

The following committees were appointed:

Committee on Resolutions: Mrs. H. M. Whelpley; Mrs. J. Leyden White.

Committee on Nominations: Mrs. John G. Godding; Mrs. R. S. Lehman; Mrs. Gammon.

The first session of the Women's Section was then adjourned.

SECOND SESSION.

The second session of the Women's Section, A. Ph. A., was called to order August 29, at 11:00 A.M., by Mrs. John G. Godding. The report of the Secretary, Mrs. Hampton Ray Kenaston, was read by Miss Zada M. Cooper. It follows:

THE SECRETARY'S REPORT.

To the President and Members of the Women's Section of the American Pharmaceutical Association:

It affords me great pleasure to again send greetings to the officers and members of the Women's Section of the American Pharmaceutical Association and to offer for your consideration my third annual report as your Secretary.

I regret most sincerely that I cannot attend this meeting, for experience has taught me that the benefits for those in attendance are of lasting value and the loss to me is greater than can be estimated. Though absent, my best wishes are with those assembled and my prayer is that this meeting may be the most successful yet held; may God's richest blessings attend your deliberations and may Divine power direct the great work for which you have come together and which this Section must accomplish.

It is with great interest and intense pleasure that we note the continued and increasing demand for women pharmacists in the retail drug business, in the wholesale business, in the educational and in the scientific laboratories, colleges and manufacturing institutions, the research work and the experimental work of the pharmaceutical profession. There is no question but that the Women's Section of the A. Ph. A. has had a great influence in developing the objects for which it was originated, and with the requirements for the educated women in the field of pharmacy, shall we not redouble our energies to make this influence greater from year to year?

Your Secretary earnestly trusts that a portion of the amount of funds available for the use of the Section may be voted by this meeting to the carrying out of the plans as adopted at the 1918 meeting. Your Secretary has made a strenuous effort to do her duty in reaching the young women who are about to select their life work, placing before them the advantages in selecting the profession of pharmacy, but the work has not proceeded with the dispatch that it would have done had an amount been assigned for this purpose and that amount judiciously applied. With the exception of having official stationery provided, all other expenses have been met from personal money. While I was pleased to do this so far as I could, I did not feel privileged to ask others to assist me at their own expense. The years of 1917 and 1918 each incurred extra expenses in connection with the revision and printing of the by-laws. If it meets with the approval of this meeting, it would be practical to devote a part of the funds to the obtaining of results along the lines for which the Section was formed.

Your Secretary is pleased to report that printed copies of the Revised By-Laws have been made and a number have been mailed out. A copy was enclosed with each official letter unless the person addressed had previously received a copy and also a complete copy appears in the printed minutes of the Chicago meeting. The report of the Committee on Revision of by-laws was accepted and adopted by the Women's Section August 14, 1918, but because of an oversight, same was not presented to the Council of the A. Ph. A. for their action at the 1918 meeting and it must be presented at the New York (1919 meeting) for approval of the Council. A letter from Editor E. G. Eberle, explaining this matter, was received by your Secretary, in which it was stated that the By-Laws could be presented to the Council for action at the 1919 New

York meeting. This matter should have consideration at the proper time during the progress of the A. Ph. A. meeting.

The constitutional duties of the office of the Secretary-Treasurer have been performed. Many letters of interest and inquiry have been received and the work accomplished by the Women's Section has been most highly commended, which commendation and approval is most gratifying. Though the work of the office is arduous, every duty has been a pleasure to perform.

There are many recommendations that occur to your Secretary as of intense value in promoting the work of the Section, paramount of which is continuing along the same outline as has been followed from year to year and especially emphasized and adopted at the Chicago meeting. If our work functions well, it must be accomplished, not by adopting new ideas and dropping the old, but by becoming more and more efficient in the work as we find it of the greatest advantage. However, those in attendance at the meeting are the proper ones to select the program for the coming year's work, and your Secretary is pleased to leave it with them.

The profession of pharmacy is one for which women are especially adapted; light, clean, neat and healthful work that any girl of average intelligence can make a success of and that with but a comparatively short course of college training, become efficient and commanding a good salary.

This report must of necessity appear somewhat indefinite as to figures, because all printing of letter heads and of the By-Laws was looked after by our President, and the printing of the minutes, together with the reprints of same, was directed by Editor E. G. Eberle. I am pleased to acknowledge the kindness and to express my very great appreciation for the assistance thus rendered.

To our President, Miss Anna Bagley, I extend the most cordial thanks for her kindly assistance and direction in the details of the work of the office. She has been ever ready to share the work insofar as was possible for her to so do.

In conducting the necessary work of the office I have written 278 letters and 65 post cards.

Your Secretary is deeply grateful for the privilege of serving the Section and desires to give public expression for the uniform kindness shown her and for the kindly coöperation in all her official relations; all have shared with me in whatever effort has been made.

Fraternally submitted,

(Mrs. H. R.) Jean McKee Kenaston.
Secretary-Treasurer.

Letters were read from Mrs. C. A. Dye, Mrs. E. A. Ruddiman, Miss Bertha Ott, Mrs. George D. Timmons, and Mrs. Tom Carpenter. Greetings were read from Mrs. W. L. Dewoody, as follows:

"The joys I have possessed are ever mine; out of thy reach, behind eternity, hid in the sacred treasure of the past, but blest remembrance brings back." (Dryden.) So though absent in body, my mind and heart are truly with you to-day. I am living over the pleasant meetings I have attended and enjoyed so much, I must say doubly enjoyed, because my dear husband's mind, heart and hands were wrapped up in Pharmacy and the drug business—from this source he had not only realized a competent living, but also his pleasure and entertainment. He looked forward from year to year to the meetings with pleasurable anticipation of a happy time, a season of relaxation, a reunion with loved and congenial friends, and to adding something more to his storehouse of pharmaceutical knowledge. So, while I had a separate and distinct pleasure in these meetings, my appreciation was much enhanced by his zest and enjoyment. I sometimes wonder if, looking back from the other world, he does not keep in touch with his old love, the drug business. Without him my life is just half, but I find no time to stop and brood, and know that the greatest respect I can show him is to try and carry forward his wishes and to finish as nearly as I can what he had begun.

These are no ordinary times, but very extraordinary—a season of wonders—the impossible (?) accomplished. The war has made unbelievable strides in the perfection and use of aeroplanes and all other war devices. Pharmacy and surgery have not lagged in this wonderful world advancement. Our wounded and disfigured soldiers have been healed and made over in a way utterly impossible a few years ago. But none of these things have gone forward any more rapidly or wonderfully than has woman. The war has developed her marvelous capability and adaptability, it has shown how diverse and efficient her capacity. It has shown what a bulwark of power she can be in case of emergency, and how varied her undertakings and how suc-

cessful in most instances. It is not necesssary for woman to take and keep man's place in the world; there is an individual and fitted niche for each, but it is a glorious thing for her to be able to rally to emergencies (and they come in peace as well as in war) and to fill his place when he is disabled. But God forbid that the ballot, or "equal rights," or business capacity, or anything else, may render her mannish or coarse or aggressive. While we appreciate brains, business capacity and competency to make a living, we do not want it in exchange for the modesty, the timidness and lady-like gentleness of our grandmothers.

It has always seemed to me that if there is a business in the world for which a woman is peculiarly adapted it is pharmacy. We know she excels in routine work, she is careful in minutia, she studies cause and effect, and is more careful of details. Man's reason and judgment are better, he invents and develops wonderful things, but it depends upon woman to do the things that require accurate and perfect manipulation; nothing too small for her whole attention. So it seems woman is not the inferior or superior of man, but, to speak in terms of Geometry, is his complement. It takes both to complete God's plan for a perfect humanity—two, to make one thorough-going human machine. Christ spent His short life on earth in humble service to humanity; His slogan was, "Serve ye one another;" "Love ye one another." Universal brotherhood is the woof and web of Christianity.

This fearful world carnage has been too dreadful to dwell upon, but it has brought us self-forgetfulness, it has brought us to serve and to give, it has strengthened the principles of democracy, it has broadened and deepened and strengthened the tie of brotherhood. "Serve ye one another"—"Love ye one another" is the one thing that will make this life worth living and will give us a passport into the glorious life eternal.

I wish for the Women's Section of the A. Ph. A. many years of pleasure and usefulness, and may your influence for good be acknowledged throughout Pharmacy.

From one who loves and appreciates your efforts.

(Signed) MARY SORRELLS DEWOODY.

The Committee on the President's Address reported that the recommendations of the President be approved, and the Section voted to adopt.

The Committee on Nominations reported as follows:

Honorary President, Mrs. W. L. Dewoody, Pine Bluff, Ark.; *President*, Mrs. F. J. Wulling, Minneapolis, Minn.; *First Vice-President*, Mrs. L. F. Kebler, Washington, D. C.; *Second Vice-President*, Mrs. George Blakely, The Dalles, Ore.; *Third Vice-President*, Mrs. J. Leyden White, of Brooklyn, N. Y.; *Secretary-Treasurer*, Mrs. Hampton Ray Kenaston, Bonesteel, S. D.; *Historian*, Miss Bertha Ott, Cincinnati, O.; *Chairman of the Executive Committee*, Miss Anna G. Bagley, Columbus, O.; *Member of the Executive Committee*, Mrs. C. B. Jordan, LaFayette, Ind.; *Chairman Membership and Press Committee*, Mrs. John Culley, Ogden, Utah.

A paper was presented by Miss Adelaide Rudolph, of New York City, entitled:

AN APPLICATION OF THE OLD CREATION STORY TO WOMEN AND PHARMACY.

M. Cadet, founder of the *Bulletin de pharmacie*, forerunner of the *Journal de pharmacie et de chimie*, has given us a lively picture of the attitude of the pharmaceutical profession towards women in 1814. I think you will find it interesting. So I have made a translation of it to read to you. It is entitled: "*Des Femmes dans l'Exercice de la Pharmacie.*" (Concerning women in the practice of pharmacy):

"Madame B., widow of Dr. B., a provincial pharmacist, has written to ask us," says M. Cadet, "whether she can be admitted anywhere to take the examinations required for the practice of pharmacy." M. Cadet replied with the following letter:

> "Madame, there are few women to whom pharmacy appeals sufficiently to make them care to give it special study. You were acquainted, you say, with botany before you were married, and you took a course of chemistry in Paris under our illustrious Fourcroy, and your worthy husband, whom you now mourn, took pleasure in fostering your taste for these pursuits by giving you a knowledge of pharmaceutical preparations, so that you now believe yourself ready to answer the examination questions, if the rules of pharmacy allow a woman to be admitted as a candidate. You think the law unjust which permits the widows of pharmacists to continue the business only a year, until a purchaser of their shop can be found, and you say to me: *Why should not women*

be received as men, if they show the same ability? Do not the Sisters practise pharmacy in most of the civil and military hospitals, and are not the Sisters very ignorant? I must confine myself, Madame, to the reply only, that, if the Sisters practise pharmacy, it is a grievous abuse against which there has been universal but vain protest; that these Sisters, thus, as you say, not knowing anything about the Latin language, can neither consult authors who have written in this language nor translate from the Latin, and consequently cannot fill correctly the prescriptions of physicians; that the schools would not consider it wise to admit a woman, though the law is silent in this regard, because in default of a law, custom has established that what you propose is against every form of usage.

"As you have devoted your leisure to more serious studies than those with which your sex is ordinarily employed, permit me, Madame, some historical citations which are not foreign to your pretentions. Among the ancients, pharmacy was not distinct from medicine; whoever practised one practised the other. Now, the history of the art of healing presents to us several celebrated women who made this art a profession. Artemisia, queen of Caria, cultivated medicine with success; Aspasia, the Phocean, the mistress of Cyrus and Artaxerxes, wrote upon this science. Cleopatra has left us a treatise on the maladies of women; and, finally, Agnodice, the young and beautiful Athenian maiden, disguised herself as a man in order to study and practise medicine. The physicians, deceived by her disguise, accused her of entering the homes of women for evil purposes. Agnodice, cited before the tribunal, proved her innocence and her sex by the assistance of the ladies of the best families of Athens, who were parties to the lawsuit. After several hearings the Areopagus, not less convinced of the merits of the accused than touched by her charms, accorded her the free exercise of her profession and even gave other women the opportunity to cultivate medicine.

"We are not so gallant as the Areopagus, and if women among us sometimes effect wonderful cures, it is not with the title of doctor. No more have they the right to practise pharmacy; and the remedies which they administer to us, though very sweet sometimes and very efficacious, are always due to an empiricism more or less without the law.

"I know, Madame, critics so severe as to hold that a woman, however well instructed she may be, is out of place in a drug store. One cannot ask, say they, for certain remedies, without acknowledging at the same time certain diseases, which a man might willingly talk about to his physician, but which cannot be confided to a lady without causing her embarrassment. In Germany, Prussia, England, and Russia, it is rare to see a woman in a pharmacy. This place seems too hard for them. But this exclusion is not according to the custom of France.

"Many of our profession are to be congratulated on having entrusted to their wives the care of the commercial details of their houses, and the public does no less justice to their modest grace and their affability. They abstain carefully from prescribing for the sick and take no part in the manipulations of the laboratory. There are many preparations, however, that add to the well-being of life, which require only dexterity, patience and neatness. These are adapted to women, and it is to these simple preparations that they ought to limit their efforts in practical pharmacy.

"Thus, Madame, usage, opinion, propriety, and even reason are opposed to the desire that you have of presenting yourself for the examinations. You cite in vain the celebrated Laura Bassi, who received the degree of doctor at Bologna, the learned Agnesi of Milan, who sustained at nineteen a hundred and ninety-one theses, the collection of which was published; the schools of boards of pharmacy, without a new law, would not consent to question you or sign your certificate. However the love of the sciences may dominate you, a career in these is not open to you. You can, Madame, work in your study or in your own laboratory, edit your observations, write memoirs, and place your name beside those of Mesdames d'Arconville, du Coudray, Dupiery, Foucquet, Guyton de Morveau, and Lepaute.[1] The Parnassus of women is already

[1] Women of about that time who had published treatises and textbooks upon medicine, chemistry, and other scientific subjects.

very illustrious. There is lack, however, of women pharmacists, and I know there is not a chemist who would not do himself the honor of giving you a hand to help you to climb.

I am with respect, etc.,

C. L. C."

Bull. de Pharm., 6, 564–68, 1914.

Whether this was a bonafide letter, I do not know—or just a concoction of M. Cadet's written in a kindly, satirical vein. His historical references give one that impression, for they are certainly disconcerting as to accuracy.

However, M. Cadet is dead, and many other Frenchmen and other men of his time and other times are dead, and their opinions and prejudices are dead with them! And this is a new world! And women not only have the opportunity, but even are urged to come out and help to make another and better world as they will.

What wonder, then, if the mind reverts to that old creation story as told by the Hebrew seer:

"And the earth was without form and void, and darkness was upon the face of the deep. And the Spirit of God moved upon the face of the waters." And He said: "Let there be light, and there was light," and He divided the day from the night, and the land from the sea, and filled them with life, and clothed them with beauty. Then He rested and saw that all was very good; but—we will not concern ourselves with the *resting* part yet!

It is a picture full of energy and cheerful acceptance of a situation and making the best of it without looking around for a more desirable place in which to begin; and it fits in admirably with our up-to-date optimistic, social religion, which allies each and every one of us with the Creative force of the world and places the larger responsibility for the good or evil outcome of affairs upon our own individual and collective efforts. It points out to us so neatly, too, that that place wherever any one happens to emerge on the sea of life is his natural vantage-ground for effort, so that he need lose no time in seeking where to make a start. And if he be in any doubt as to what to do next, I think the story teaches a simple and systematic mode of procedure which is bound "to win out:" The nearest duty that presents itself; the nearest soul who needs a word of comfort or of friendly interest—these should claim one's first consideration. Clear up and set in order the place in which you chance to find yourself; bring in the light; fill it with the creations of your handiwork; clothe it with the beauty of your loving idealism.

We of this company, of course, for one reason or another, all find ourselves allied to pharmacy—some as students and adepts in the science, who are designated as the "professional" members, but the larger part allied simply by family ties or by some other result of fortune. These latter are called the "non-professional" members.

Now it seems, that whereas the professional members of this Women's Section feel keenly their responsibility to the Association, and know what they want to do and have made plans how to do it, and see the very great advantage of all pulling together, according to the old adage, "In union is strength," the non-professional members are inclined to so discredit their own influence in shaping the affairs of pharmacy that it is difficult to secure from them the full cooperation which is necessary for any success of the plans proposed, especially of the educational program which was arranged last year for reaching high school girls and other young women of the country through women's clubs, etc.

Your kind and considerate president, Miss Bagley, therefore, in inviting me (as a courtesy to our New York College of Pharmacy, I take it) to write a paper for this Section, suggested that "perhaps I could refer to this subject and point out definitely where your membership could accomplish definite results."

I assure you I was truly grateful for the suggestion, because it is not an easy matter to find a topic for a paper, and considerably more difficult to write one to be read before a company with whose tastes and methods of procedure one is entirely unacquainted. Since this creation story has furnished the rule for my own guidance for many a year, you can understand that I felt bound to agree cordially to do whatever our guests proposed as most agreeable to them without regard to my own feeling that I was little fitted for the task.

Therefore, from as non-professional a standpoint as any of you can take, I have read over

the educational program of last year, and find it so admirable in every respect, that I feel sure if it be carried out just as it stands it will bring the desired results.

The publicity work, I believe, is very properly put under the care of the Press Committee, as was planned. And, while that work, in the nature of the case, must be left to a few members only, mostly "professional," the work to be carried on by the Outlook Committee can be put through almost entirely by "non-professionals" as can that described in the third clause of the program.

While, as I said, this program looks to me so admirably planned that it hardly needs revision or suggestions of a more definite character, there is in the second clause, relating to reaching girls with a message about the opportunities in pharmacy for women, a point where various plans might be offered for consideration as to how one might most agreeably and effectively get the attention of fellow club members. A plan like this has occurred to me as feasible, which I present, not because I think it highly original, but hoping that it may provoke discussion, or at least a determination in your minds to think up something a great deal better.

Suppose a member of this Section, presumably a druggist's wife, who is also a member of one of the various women's study clubs, should request that, on the day she is appointed to entertain the club, the topic of discussion should be "Pharmacy as a Profession for Women." Then let her call to her assistance a professional member of this Section or of the local Women's Auxiliary, who is a ready talker and can set forth in an entertaining way the merits of the subject. Let her invite also a bevy of girls from her husband's store and other drug stores in the vicinity to come in in time to assist her in the serving of the refreshments and in any other entertainment which might enhance in the minds of the guests the attractions of pharmacy. Very possibly the girls from the drug stores might devise the entertainment themselves. At the same time just the introduction of these girls to her guests along with her own daughters, if she be so fortunate as to possess grown daughters, would help greatly towards establishing those desirable social relations, the value of which Mrs. Emma Gray Wallace has so admirably set forth in her paper on "Securing Prestige for Women Pharmacists." (*Pharm. Era*, 51, 177, 1918.)

The pleasant impression left with the guests by a novel adventure of this kind would remain for a long time and reach an ever widening circle, especially if the experiment were repeated occasionally so that the subject should not pass out of mind. I believe that if the non-professional members would interest themselves in this direction, they could do a wonderful work, as your president has put it, for pharmacy and indirectly for the A. Ph. A.

So much for the educational program.

If the "non-professional" could get it well established in her mind that she has a mission in life to perform, as undoubtedly every human being has, she would be able to help in many other ways through such an association as this in clearing up and setting chaotic places attached to pharmacy in order.

How often have I wished, as I looked out from my little corner in the library, that there were some local associations of women interested in the work of the College as the men's association is. There are questions just of good housekeeping which I think could and would be settled much more efficiently by women than by men—naturally so. Anyone who has worked through women's associations for other colleges knows this to be true.

Also, there is always the question arising, you know, about what is going to be done for these girls, to make their lives worth while to themselves and others, after they have once been induced to enter pharmacy. This is undoubtedly of not so much concern in the co-educational universities of the West, where surroundings will be much the same for the young women of the pharmacy course as for those of the academic courses; but in the separate schools, and in the East where co-education has not taken very deep root, a good active women's association is needed to furnish the girls, on occasions, with a little taste of social life which they do not have to engineer and pay for themselves, and also to provide the proper supervision of their rest and study rooms so that they shall retain or acquire, those characteristics of cleanliness, neatness, service, etc., which are supposed to be innate in women, and which recommend them especially to the pharmacy profession. My imagination has often conjured up a committee of women coming to the College at regular intervals—say once a month—to serve tea informally to the girls and chat with them or bring an interesting guest to talk to them for a few minutes after lectures are over in the afternoon.

I sometimes dream, too, of pharmacy's coming to the rescue of society with remedies for the social ills as it does with medicaments for the bodily ailments of mankind.

What an opportunity it has for getting together all elements of society! Think of all the nationalities in a big city like this which it unites in a common fellowship! What a convenient place is a drug store to start in with Americanization and the realization of democratic ideals—subjects forever on the tongue, but rarely, if ever, in evidence!

If I had time, I should like to enlarge upon this topic, of how the wives of pharmacists, if their husbands were willing, could help to establish a unit of true democracy in every drug store of the land, and lead the world in this respect.

Enough has been said, however, to show that no one is justified in sitting down and being a "slacker," now that peace to the world is in sight, more than during the Great War. Women are needed everywhere for the recreation of society; and each one will render the quickest and most efficient service by starting in wherever she finds herself—that means for us, with pharmacy.

If we need anything to fortify our spirits and give us cheer and endurance in confronting the prejudice and chaos and darkness and disorder that are still rife in the world, we would do well to keep steadily in mind, that to be a creator, as illustrated in the Old Story, we must simply stand fast in the place where we have emerged by choice or chance, clean it up, set it in order, shut out the darkness by bringing in the light, and make it as beautiful as we can.

Following this rule, if we never find time for resting and seeing that all is very good, we shall, at least, find that joy and satisfaction expressed so nobly by Robert Browning:

"Rejoice we are allied
To that which doth provide
And not partake, effect and not receive!
A spark disturbs our clod;
Nearer we hold of God
Who gives, than of His tribes that take, I must believe."

"Then, welcome each rebuff
That turns earth's smoothness rough,
Each sting that bids nor sit nor stand but go:
Be our joys three-parts pain:
Strive, and hold cheap the strain;
Learn, nor account the pang; dare, never grudge the throe!"

THE NEW BY-LAWS.

The Section by vote approved of the By-Laws presented at the last annual meeting and ordered that they be submitted to the Council of the American Pharmaceutical Association for approval. (See pp. 1093–1095, December issue JOURNAL A. PH. A., 1919.)

The Women's Section of the American Pharmaceutical Association was then adjourned.

EX-PRESIDENT FREDERICK J. WULLING OF THE A. PH. A. MAY SUCCEED DR. MARION L. BURTON. AS PRESIDENT OF THE UNIVERSITY OF MINNESOTA.

Word has come, as we go to press, that Dean Frederick J. Wulling, of the Pharmacy Department, University of Minnesota, has been mentioned as a leading possibility for President of the University of Minnesota. President Marion L. Burton goes to Michigan, and thereby the vacancy is created. The Board of Regents will convene January 15, but a referendum vote has been taken by the faculties, however, not officially announced.

Dean Wulling is a capable administrator and knows educational problems in Minnesota; he is the senior dean of the University, having organized the College of Pharmacy in 1892. He was president of the American Pharmaceutical Association, 1916–1917. Concurrent news conveys the information that Professor Wulling has been offered the presidency of a chemical manufacturing company and the University does not contemplate losing his services if he can be induced to remain in Minnesota.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The December meeting of the Baltimore Branch of the American Pharmaceutical Association was held Wednesday evening December 10 at the Hotel Emerson, President C. C. Neal officiating.

The feature of the evening was an address by Lieutenant Dickens, Personnel Officer of the Bureau of Medicine and Surgery of the Navy, on "The Position and Duties of the Pharmacist in the Navy" and a discussion by him of the provisions of the Darrow Bill. Lieutenant Dickens spoke in a most interesting manner of the advantages the passage of this bill would offer to pharmacists now in the Hospital Corps of the Navy as well as to those who will enter this department in the future, providing, as it does, one commissioned officer in the Hospital Corps for every two thousand of the enlisted personnel of the Navy and for the ultimate rank of Lieutenant Commander for pharmacists who succeed to this position.

The Lieutenant told of the special training given pharmacists in the navy schools, and spoke in the highest terms of the work done by pharmacists in the Navy during the war. He concluded by answering numerous questions about the Darrow Bill and was given a rising vote of thanks by the Branch for his splendid talk.

Feeling that the Branch should assist in every way possible the progress of this bill, Dr. Henry P. Hynson moved that the Branch go on record as favoring the passage of the Darrow Bill and that the President appoint a committee of four, besides himself, to wait upon the Congressmen and Senators from Maryland and enlist their support for this measure. This was done and the following committee appointed:

C. C. NEAL, *Chairman*,
H. P. HYNSON,
E. F. KELLY,
J. E. HANCOCK,
LOUIS SCHULZE.

Following this motion, ex-President F. F. Berg, of the St. Louis Branch A. Ph. A. made some valuable suggestions to the membership committee looking to the enlargement of the membership of the organization. These suggestions were discussed and heartily approved before the meeting adjourned.

FRONTIS LENTZ, *Secretary*.

CHICAGO.

The 106th meeting of the Chicago Branch of the American Pharmaceutical Association was held Tuesday evening, December 16, at the La Salle Hotel. The meeting was preceded by a well attended dinner.

President A. H. Clark presided. Secretary Gathercoal announced that 70 new members (mostly S. and S. members) had been received since the last meeting. A nominating committee, namely, Messrs. C. M. Snow, H. C. Christensen and Wm. Gray was appointed to report at the January meeting.

Roscoe E. Doolittle, District Director of the United States Department of Agriculture, Bureau of Chemistry, was introduced and gave a very able address on the subject "Methods of Handling Imports of Food and Drug Products." In a simple and most entertaining way Mr. Doolittle discussed the nature and effect of the various laws under which imports are checked as to genuineness and quality. He referred especially to the first enactment, that of 1848, for the control of the quality of imported drugs, and the Tea Act of 1868, both of which are still in use, enforced by the Treasury Department.

In 1893 authority was given the Department of Agriculture to inspect imported foods and drugs. This was supplemented by the Food and Drugs Act of 1906. The outstanding fact is very evident to one familiar with these laws that the restrictions as to purity and quality of imported foods and drugs are much higher than for domestic products.

The speaker then traced the course of a lot of imported drugs from the time the ex-

porter appeared before the American consul in the country of export to the point of actual possession without restrictions by the importer. This was of great interest to the audience.

The address concluded with a discussion of the effects of the war on drug imports, the changed conditions of drug importation since the war, and the rise of Japan as a drug exporting nation.

The address was warmly received and request for publication is to be asked from Dr. Alsberg, the head of the Bureau.

In the interesting discussion that followed many questions were asked of Mr. Doolittle. Professor Day brought out the fact that the American Pharmaceutical Association was organized in 1852, for the express purpose of improving the quality of American drugs.

E. N. GATHERCOAL, *Secretary.*

NASHVILLE.

The Nashville Drug Club and the Nashville Branch of the A. Ph. A. held their regular joint session in the Tulane Hotel, Thursday, December 4, D. J. Kuhn presiding.

A delightful luncheon was served to all present in the special dining room at 1:30 o'clock, after which the business session was held.

The minutes having been approved, the Early Closing Orders of the Fuel Administration were presented for discussion. D. S. Sanders pointed out that the sale of drugs alone was not sufficient to justify druggists in keeping their stores open after 4 P.M., and he thought all should close if not allowed to sell other articles. On motion D. S. Sanders, Chas. Jennings, C. C. Young, E. J. Schott and D. J. Kuhn were appointed as a committee to present their views to M. R. Hill, the local Fuel Administrator.

The renewal of alcohol bonds before January 1 was commented on by Messrs. Martin, Sanders and White, and the necessity of keeping permits posted in a conspicuous place was emphasized.

C. S. Martin discussed the drastic provisions of the new State Insecticide Law, which he said, if enforced, would drive many of the standard brands out of the State and work a great hardship on druggists. On motion D. S. Sanders, C. C. Young and D. J. Kuhn were appointed as a committee to confer with the Commissioner of Agriculture in regard to its enforcement.

The responsibility resting upon druggists who sell alcoholic preparations which might be used for beverages was strongly impressed on all by Mr. Martin. He stated that the provisions of the law allowing the sale of any preparations containing over one-half of 1 percent were granted on an appeal by the druggists and that they were in honor bound to obey the law and each druggist will be held individually responsible for their misuse.

A letter received from Secretary S. C. Henry, of the N. A. R. D., stated that Aspirin tablets which contained no proprietary right or therapeutic claims would not be subject to the tax stamp, and that all soaps, both medicated and unmedicated, should not be stamped.

President Kuhn cautioned all about the seriousness of violating the stamp tax law. He said the revenue officers were beginning a crusade against violators and that the penalties were severe.

The luncheon proved so successful in bringing out the members that it was decided to have another one at the January meeting.

WILLIAM R. WHITE, *Secretary.*

The Section on Practical Pharmacy of the A. Ph. A. desires to make an analysis of the Prescription Files of the drug stores of the country, to be reported at the next meeting of the Association in May. This information will be of great value to the Revision Committee of the U. S. P. and N. F.

Any druggist who is willing to report on 1000 prescriptions will please write to William R. White, 314 Hancock St., Nashville, Tenn., for a report sheet.

NEW YORK.

The November 1919, meeting of the New York Branch of the American Pharmaceutical Association was called to order in the Lecture Hall of the New York College of Pharmacy Building on Monday evening, November 10 at 8:15 P.M.

Forty-five members were present.

Minutes of the preceding meeting were read and approved.

The Treasurer's report was received with the thanks of the Association and ordered filed.

There were no committee reports.

The Secretary was instructed to write a letter to the Treasurer of the Association and to the Member of the Council asking for information as to what will be the arrange-

ments regarding the Membership Committee as far as the plan of the War Veterans Section is concerned. It was moved, seconded and carried that the Branch shall carry on its books the members of the War Veterans Section for one year without payment of dues.

Reports of the delegates to the various conventions were now read:

Dr. Hostmann reported on the New Jersey Convention. A report by Prof. Curt P. Wimmer covering the Connecticut State Convention was read by the Secretary in the absence of Dr. Wimmer. Mr. Robert S. Lehman brought in a report covering the New York State Pharmaceutical Association.

The question of Compulsory Health Insurance was brought up and it was moved, seconded and carried that the officers be instructed to arrange for a mass meeting to formulate plans for an organization composed of pharmacists, dentists and druggists from the metropolitan district to oppose Compulsory Health Insurance.

Dr. W. C. Anderson read a very interesting paper outlining the work, past and present, of the New York Pharmaceutical Convention; considerable discussion followed.

After a rising vote of thanks was tendered the speaker the meeting was declared adjourned.

HUGO H. SCHAEFER, *Secretary.*

The December 1919 meeting of the New York Branch of the American Pharmaceutical Association was called to order in the Lecture Hall of the New York College of Pharmacy Building on Monday evening, December 8.

The meeting was opened at 7:30 P.M. in order to make room for the Mass Meeting which was to follow: Owing to the shortage of time no reports were brought in by the chairman of the various committees.

One new member, however, was proposed.

Mr. Elias Diamandi Zografi, 21 East 37th St., New York City.

The Secretary was ordered to take the usual course with regard to this application.

Upon suggestion of Mr. Eddy it was moved, seconded and carried that a $5.00 bond be bought from the National Tuberculosis Association. President Lehman appointed the following nomination committee to report at the next meeting:

HUGO KANTROWITZ,
JOSEPH L. MAYER,
HERMAN WALTER.

At 9 o'clock the Special Mass Meeting was called to order by President Lehman.

Over sixty members and friends were present.

Dr. John J. O'Reilly addressed the meeting on the question of Compulsory Health Insurance.

Considerable discussion followed. It was moved, seconded and carried that a vote be taken as to whether the meeting favored the bill or opposed Compulsory Health Insurance. The resulting vote showed all but three present opposed the Compulsory Insurance.

It was moved, seconded and carried that the meeting proceed, forming a permanent organization.

The following officers were elected:

Chairman, Dr. Dupin, 565 W. 144th St., City; *Vice-Chairman*, Dr. Arthur J. Hersig, 229 W. 78th St.; *Secretary*, Clyde L. Eddy; *Treasurer*, Dr. Solo.

HUGO H. SCHAEFER, *Secretary.*

PHILADELPHIA.

The December meeting of the Philadelphia Branch of the American Pharmaceutical Association was held in the Philadelphia College of Pharmacy Building, December 9, at 8. P.M.

The minutes of the previous meeting were read and approved. C. B. Lowe expressed his appreciation of the resolution passed at the November meeting dealing with the classification of pharmacists with retail liquor dealers. The proposed "Welcome Home" celebration to be held by the drug interests of Philadelphia for the returned soldier and sailor pharmacists was discussed by Edward T. Hahn. The Branch favored the project and its officers were instructed to give all possible coöperation to make the event a success. A communication from the World Trade Club was read. It dealt with the passing of legislation making the use of the metric system compulsory. Inasmuch as the parent body already is on record favoring such action the Local Branch officers were instructed to sign the endorsement and forward it to the proper authorities. This ended the business program. The scientific program followed.

Dr. Henry Leffmann presented an interesting illustrated lecture on the "Newer Applications of the Use of Polarized Light in Detecting Chemical Compounds." Dr. Leffmann outlined this comparatively new field of chemistry in a comprehensive manner ex-

plaining the various phenomena in language understandable to all. His lecture was followed by an interesting discussion.

Edward T. Hahn gave an up-to-date talk on "Sales and How They are Made." His talk was centered on what he termed the "Rule of Sale." Sales in his mind were divided into four distinct steps, Attention, Interest, Desire and Sale. Each step was considered separately and everyone present surely profited by this rather unique part of the program.

Ivor Griffith followed with "Practical Urinalysis." His extensive experience in this work enabled him to present the subject interestingly and thoroughly.

The meeting was attended by approximately eighty persons and was probably the most profitable meeting this year.

ELMER H. HESSLER, *Secretary.*

PITTSBURGH.

After a lapse of several months the Pittsburgh Branch of the American Pharmaceutical Association held the initial meeting for the winter season, Tuesday, December 9 at 8 P.M., at the College of Pharmacy, with President L. K. Darbaker presiding. The first subject taken up for consideration and discussion was the question of whether the Year Book be discontinued, and its twin query, shall the dues be increased? in order that every present feature of the parent association's activity be continued without financial loss. Dr. J. A. Koch said, "while the cost of getting out the Year Book is high, yet its value to those members who appreciate the annual volume is great; to discontinue its publication would, in my judgment, be a mistake." He then moved that the proposition to increase the annual dues to $7.50, be endorsed, and the proposal to have more than one class of members, *viz.*, those who wanted the Year Book at the increased dues, and those who preferred the old rate of dues without the Year Book, as has been advocated by some be disapproved, and that the JOURNAL, the Year Book, as well as all the present publications of the Association, be continued. The motion prevailed. The National Prohibition Law and the relation of pharmacists thereto, was presented for discussion with result that after full discussion the following resolution was unanimously adopted:

WHEREAS, The purpose of the National Prohibition Law is to confine the sale of spirituous liquors to medicinal purposes only, and

WHEREAS, Under the said law the pharmacist is obliged to give bond in the sum of one thousand dollars that he will faithfully carry out its provisions in so far as the sale of spirituous liquors is concerned, and

WHEREAS, In the past the Pharmacist has been obliged to take out a license as a retail liquor dealer for the privilege of dispensing spirituous liquors for the use of the sick in compliance with the prescriptions of legitimate physicians, therefore, be it

Resolved, That the Pittsburgh Branch of the American Pharmaceutical Association hereby places itself on record as being opposed to all reference in the public press to the Pharmacists as retail liquor dealers, inasmuch as the Pharmacist is a public servant in the capacity of supplying medicine, while under the law he is made to appear as a bonded distributor of spirituous liquors as a medicine only, and not for beverage purposes, and be it further

Resolved, That a copy of these resolutions be sent to the Commissioner of Internal Revenue at Washington, to the Collector of Internal Revenue in the 23rd District of Pennsylvania and to the public press.

The action of the 1919 meeting of the American Pharmaceutical Association in extending an invitation to all returned soldiers and sailors who are identified with pharmacy to become affiliated with the Association, without payment of dues for the first year, was heartily endorsed, and the secretary instructed to secure additional application blanks. Dr. Koch agreed to give this invitation wide publicity for the reason that it will give a large number of pharmacists an insight into the valuable work of the Association, and thus cause them to continue in affiliation. A motion then prevailed that a committee consisting of five members with A. E. Baier as Chairman, he being a present A. Ph. A. member and a returned soldier, to secure the names of all returned soldiers and sailors who have seen service and are identified with pharmacy and secure their application for membership.

The Committee on Nominations reported the following nominees: *President*, Leasure

K. Darbaker; *Vice-President*, A. E. Baier; *Secretary*, B. E. Pritchard; *Treasurer*, P. Henry Utech. The report was accepted and the Secretary empowered to cast the ballot for their election.

After the regular business was concluded, Jacob Winters, a student of the College of Pharmacy and a returned soldier, entertained the meeting with a series of interesting views of high spots in and about Paris, as well as many snap shot pictures taken by his own camera of scenes on the battlefield, No Man's Land and in the trenches. The courtesy was greatly appreciated.

President Darbaker announced his intention of holding regular meetings hereafter and requested the coöperation of everybody interested in making the proceedings interesting and instructive.

B. E. PRITCHARD, *Secretary*.

ST. LOUIS.

The October meeting of the St. Louis Branch A. Ph. A. was called to order at the St. Louis College of Pharmacy, October 12 at 8:15 P.M. Vice-President B. H. St. John officiated.

The minutes of the prev ous meeting were adopted without amendment.

Motion was made by Mr. Noble and seconded by Mr. Vogler that the President be empowered to appoint a committee to formulate a set of laws for the guidance and regulation of this branch, which, however, must not conflict with the by-laws and regulations of the parent organization. The motion was adopted and the President accordingly appointed. Dr. H. M. Whelpley, *Chairman*, and Mr. L. G. Blakeslee associate member of the Committee on By-Laws.

The following applications for membership were turned over to the Secretary to be sent to the American Pharmaceutical Association for approval: M. Ebbert Webber, 5630 Pershing Ave., and Albert Milton Allen, 4930 Fountain Ave.

L. G. Blakeslee gave a short talk on some of the difficulties encountered in the present methods of guaiacol carbonate. He terminated his talk by leaving open for discussion; the question as to whether the granular precipitate which is found after standing for some time in some of the American-made guaiacol carbonate is the therapeutically active ingredient or whether the remaining liquid is the active part of this preparation. The discussion which followed was not conclusive enough to decide which of the two portions is the active ingredient.

The second paper of the evening was read by H. A. Vogler and dealt with the "Manufacture of Toxic Gases at Edgewood Arsenal." He outlined the present methods of manufacture and yields of the more important gases used in the recent World War. Mr. Vogler also mentioned the living conditions surrounding the plant and the many dangers connected with the manufacture of these gases.

Before adjournment, Thursday, November 20, was selected as the date for the next meeting.

LESLIE E. PRICHARD, *Secretary*.

The November meeting of the St. Louis Branch of the American Pharmaceutical Association was held in the Materia Medica Lecture Hall of the St. Louis College of Pharmacy, Thursday evening, November 20, 1919.

The first part of the meeting was devoted to an address by Dr. Gaston DuBois of the Monsanto Chemical Co. on Saccharin. The speaker outlined the many aspects from which saccharin is viewed which included the federal, chemical, commercial and public view-points.

Many citations were made of the existing laws, decisions and reversions of the courts in various parts of the country. The speaker concluded his address by stating his personal opinion, which primarily was, "that although saccharin is officially declared to be a drug by the official definition of the word drug, since it appears in the U. S. P., it is, nevertheless, a condiment and is intended to be used for that purpose the same as many other condiments and flavoring substances, such as cloves, cinnamon, salt, nutmeg and sugar are used, which are drugs s nce they are recognized in the U. S. P. These drugs, just named, are considered harmless in the general sense and are used mainly as flavoring substances and are not taken into the system for their food value and since saccharin is a condiment why is the legitimate use of it not permitted?"

A lengthy discussion followed which pointed out many valuable commercial and scientific uses in which saccharin could be employed. After the discussion a vote of thanks was tendered the speaker.

The second paper of the evening "Some Phases of Modern Pharmacy" by Dr. Francis

Hemm of the St. Louis College of Pharmacy was postponed, at his own su gestion, since the time was becoming short, until the December meeting.

It was moved, seconded and carried that Dr. Hemm be thanked for his courtesy and that he read his paper at the following meeting. By way of comment, Dr. Hemm said, the paper was of more importance to the retail pharmacist than to any other, and that he would discuss and suggest many changes in the next revision of the U. S. P. of material interest to the retail pharmacist.

The reading of the minutes of the October meeting followed, which were approved.

The names of ten new members were read and the members introduced.

The Chairman of the Committee on By-Laws, Dr. H. M. Whelpley, submitted the following set of By-Laws for adoption by the Branch:

BY-LAWS OF ST. LOUIS BRANCH, A.PH.A.

Preamble.

In order to more fully realize the benefits of membership in the American Pharmaceutical Association and to more actively pursue and accomplish the objects for which the Association was founded, we, the undersigned members of the American Pharmaceutical Association, hereby constitute ourselves into a local branch of the Association, to be known as the St. Louis Branch of the American Pharmaceutical Association.

This branch hereby accepts for its guidance and declares its adherence to the Constitution and By-Laws of the American Pharmaceutical Association, now in force and however amended in the future.

By-Laws.

Article 1.—*Members.*

Section 1.—This Branch shall consist of active and associate members.

Section 2.—The active members of the Branch shall consist of those members of the American Pharmaceutical Association residing within the jurisdiction of this Branch who signify their intention of adhering strictly to the provisions enumerated in the preamble and in the by-laws of this Branch.

Section 3.—All other members of the American Pharmaceutical Association, residing in this vicinity, and all other persons who are interested in pharmacy who so request it, shall be classed as associate members, but they shall not have the right to vote.

Article 2.—*Officers.*

Section 1.—The officers of this Branch shall be a president, a vice-president, a secretary and a treasurer. They shall be elected by ballot at the December meeting, each year. Any vacancy, occurring during the year, shall be filled by election at the next regular meeting or at a special meeting of the Branch called for the purpose.

Article 3.—*Committees.*

The standing committees of this Branch shall be:

Section 1. On Program.—To consist of three members whose duty shall be to secure and arrange for the presentation of scientific papers at the regular meetings.

Section 2. On Membership.—To consist of three members.

Section 3. On Professional Relations.—To consist of three members.

Section 4. On Education and Legislation.—To consist of five members.

Section 5. Executive.—To consist of the officers of the Branch and chairmen of the four standing committees. The vice-president of the Branch shall be chairman of this committee. It shall be the duty of this committee to formulate the policy for the Branch and plans to carry into effect the objects for which the Branch was organized, and to audit and authorize payment of all bills presented to the Branch. Four members shall constitute a quorum.

Article 4.—*Meetings.*

Section 1.—Meetings shall be held on the third Thursday of each month from October to May inclusive. Special meetings may be called by the president, the executive committee or by the secretary on petition of five active members of the Branch. Ten members shall constitute a quorum at all meetings and, unless a count is demanded, a quorum shall be considered present.

Article 5.—*Duties of Officers.*

Section 1.—The president shall preside at all meetings of the Branch; appoint all committees; and any other duties naturally incumbent on the office.

Section 2.—The vice-president shall be chairman of the Executive Committee and shall perform the duties of the president during his absence.

Section 3.—The secretary shall keep correct minutes of the meetings of the Branch and

of the Executive Committee; carry on all correspondence for the Branch; preserve all records and papers belonging to the Branch; shall send reports of the meetings to the pharmaceutical journals and other publications designated by the Executive Committee. He shall notify each member of the Branch at least one week in advance, when practicable, of the time and place of each meeting.

Section 4.—The treasurer shall collect and take charge of all funds of the Branch and shall sign and issue receipts for the same. He shall pay no money except on vouchers authorized by the Executive Committee. He shall present an accurate statement of his accounts at the December meeting of each year that they may be audited by a special committee appointed by the president for the purpose. He shall be reimbursed for all expenses incident to the duties of his office.

Article 6.—*Order of Business.*

(1) Scientific business; (2) reading of the minutes of the previous stated meeting; (3) introduction of new members; (4) nominations and elections; (5) unfinished or deferred business; (6) new business. Adjournment.

Article 7.—*Amendment of By-Laws.*

"Section 1.—These by-laws may be amended only when the proposed change is presented in writing at a preceding meeting, and by vote of three-fourths of the members present.

After considerable discussion the By-Laws submitted were adopted with the exception of the following paragraph, which was directed to be brought up during the December meeting according to Article 7, Section 1.

"Article 5.—*Annual Dues.*

Section 1.—Each active member shall pay one dollar annually, as dues, to the treasurer. No member who is in arrears for dues for the year just preceding the August meeting shall be entitled to vote or be eligible for any office."

A motion was made, seconded and carried, that the secretary submit to the members in the form of a return voting card requesting the members to signify which time of day, 4 P.M. or 8 P.M. they think would be more suitable to the retail pharmacists.

The meeting was adjourned under regular procedure until December 18.

LESLIE E. PRICHARD, *Secretary.*

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 8.

PHILADELPHIA, November 28, 1919.

To the Members of the Council:

Motion No 9 (Election of Atlanta Representative of Committee on Transportation), *Motion No. 10 (Appropriation of $500 to War Veterans Section)* and *Motion No. 11 (Donation of Year Books and Journals to University of Bern)*, have each received a majority of affirmative votes.

Leonard A. Seltzer, Secretary of the Committee on National Formulary, advises that:

"As the result of the ballot taken by the new Committee on National Formulary, the following officers were elected: Chairman, Wilbur L. Scoville; Vice-Chairman, George M. Beringer; Secretary, Leonard A. Seltzer."

Motion No. 12 (Election of Active Members). You are requested to vote on the following applications for active membership:

No. 39. Martin J. Noll, 5591 Vernon Ave., St. Louis, Mo., rec. by H. M. Whelpley and J. C. Falk.

No. 40. Albert Milton Allen, 4930 Fountain Ave., St. Louis, Mo., rec. by H. M. Whelpley and B. H. St. John.

No. 41. M. Ebbert Webber, 5630 Pershing Ave., St. Louis, Mo., rec. by B. H. St. John and H. M. Whelpley.

No. 42. Elmer H. Wirth, cr. F. F. Ingram Co., Detroit, Mich., rec. by F. F. Ingram, Jr. and E. J. Starwalt.

No. 43. Fabian Joseph Catalano, 2336 E. 40th St., Cleveland, O., rec. by H. E. Mitchell and Edward Spease.

No. 44. Clio Silverlain Moser, Guka, Miss., rec. by H. M. Faser and Wm. B. Day.

No. 45. Selma Louise Brooks, 130 W. Govan St., Grenada, Miss., rec. by H. M. Faser and Wm. B. Day.

No. 46. Adele Stigler, 339 North Main St., Yazoo City, Miss., rec. by H. M. Faser and Wm. B. Day.

No. 47. Malcolm Hillard McMullan, Mize, Miss., rec. by H. M. Faser and Wm. B. Day.

No. 48. Jacob Richmond, 2838 Washington Ave., New Orleans, La., rec. by Robert F. Grace and Wm. B. Day.

No. 49. LaForrest D. Bailey, 1492 Woodward Ave., Detroit, Mich., rec. by F. F. Ingram, Jr. and L. A. Seltzer.

No. 50. John Davis Bradford, 209 W. 2nd St., Little Rock, Ark., rec. by M. A. Eisele and Frank Schachleiter.

No. 51. Frederick John Heinritz, 1005 Mercantile Library Bldg., Cincinnati, Ohio, rec. by Frank H. Freericks and J. W. England.

No. 52. Lucius Horace Featherston, Jr., Hazlehurst, Miss., rec. by H. M. Faser and Wm. B. Day.

No. 53. Lew Wallace, 805 6th Ave., Laurel, Miss., rec. by H. M. Faser and Wm. B. Day.

No. 54. John W. Seiden, 416 Main St., Lewistown, Mont., rec. by Chas. E. Mollet and F. J. Zuck.

No. 55. O. W. Gillespie, Graham, Va., rec. by Wortley F. Rudd and C. F. Walker.

No. 56. E. V. Greever, Chilhowie, Va., rec. by Wortley F. Rudd and C. F. Walker.

No. 57. Morris E. Schucolter, 230 S. Bond St., Baltimore, Md., rec. by Frontis Lentz and E. F. Kelly.

No. 58. John C. Moore, Cass Technical High School, Detroit, Mich., rec. by Oscar W. Gorenflo and Leonard A. Seltzer.

No. 59. Frank Joseph Grant, 432 Central Ave., Hot Springs, Ark., rec. by M. A. Eisele and Frank Schachleiter.

No. 60. Frank Lang, Ft. Adams, R. I., rec. by Horace B. Buxton and Wm. B. Day.

No. 61. Peacher Grattan Huston, Sixth St., Bay City, Texas, rec. by J. M. Duggan and R. E. Walker.

No. 62. Emil Eichler, 1735 1st Ave., New York City, N. Y., rec. by Wm. B. Day and J. W. England.

No. 63. Nathan Warren Wilson, 706 Delaware St., Kansas City, Mo., rec. by D. P. Jones and A. A. Zieske.

No. 64. Barry O'Neal Shiflett, 136½ So. 55th St., Birmingham, Ala., rec. by Carl Whorton and W. S. Vance.

No. 65. Ralph Richard Hofmeister, 1403 Franklin St., Pittsburgh, Pa., rec. by A. Yahn and J. H. Phillips.

No. 66. Abram R. Witt, 261 Columbus Ave., New York, N. Y., rec. by J. Leon Lascoff and Jacob Weil.

No. 67. Harry Tower Galpin, 1014 6th Ave., N. E. Cor. 57th St., New York, N. Y., rec. by J. L. Lascoff and Wm. B. Day.

No. 68. William Lawrence Grimes, 2481 18th St., N. W., Washington, D. C., rec. by Lewis Flemer and S. L. Hilton.

No. 69. David Jacob Kuhn, Cor. Cedar & McNairy Sts., Nashville, Tenn., rec. by William R. White and M. E. Hutton.

No. 70. Ed. M. Mikulik, Flatonia, Texas, rec. by J. M. Duggan and R. H. Walker.

No. 71. Claude C. Cannon, Hygienic Laboratory, Washington, D. C., rec. by A. G. DuMez and S. L. Hilton.

No. 72. Benno H. Mark, 150 Washington Ave., Rockaway Park, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 73. Philip G. Cupo, 292 Leonard St., Brooklyn, N. Y., rec. by Otto Raubenheimer and Hugo H. Schaefer.

No. 74. Salvatore Joseph Gullo, 148 Hester St., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 75. Curt Herrenberg, 1803 2nd Ave., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 76. Max Miller, 989 Amsterdam Ave., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 77. Harris A. Tomashoff, 2915 Broadway, New York, N. Y., rec. by Arthur J. Bauer and H. V. Arny.

No. 78. Charles I. Cantor, 234 W. 4th St., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 79. Bela Kramer, 400 Amsterdam Ave., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 80. Charles Lund, 515 9th Ave., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 81. Nathan Gray, 2600 Broadway, New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 82. George Henry Golding, 198 Ninth Ave., New York, N. Y., rec. by Hugo H. Schaefer and J. W. Reed.

No. 83. Elizabeth Baltzly, 2560 Broadway New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 84. Peter Maer, 137 9th Ave., New York, N. Y., rec. by Hugo H. Schaefer and H. V. Arny.

No. 85. Frederick Baden, Jr., 866 6th Ave., New York, N. Y., rec. by Howard Krumwiede and George E. Schweinfurth.

No. 86. Dr. Felix Enrique Sanchez, Independencia No. 28, Camaguey, Cuba, rec. by J. G. Diaz and Jos. P. Alacan.

No. 87. Jesse Leroy Peavy, Horatio, Ark., rec. by Frank Schachleiter and Wm. B. Day.

No. 88. Harry Bell, 2013 S. 4th St., Philadelphia, Pa., rec. by Charles H. LaWall and Jos. W. E. Harrisson.

No. 89. Robert Blackwell Smith, 723 W. Washington St., Petersburg, Va., rec. by C. L. Guthrie and T. F. Knock.

No. 90. Edwin Adams Crump, Sycamore & Wythe Sts., Petersburg, Va., rec. By C. L. Guthrie and T. F. Knock.

No. 91. Frank Carr Congdon, 719 High St., Petersburg, Va., rec. by C. L. Guthrie and T. F. Knock.

No. 92. Robert Lee Bowman, Cor. Bank & Market Sts., Petersburg, Va., rec. by C. L. Guthrie and T. F. Knock.

No. 93. Robert Nelson Partin, 27 Bollingbrook St., Petersburg, Va., rec. by C. L. Guthrie and T. F. Knock.

No. 94. Thomas J. Ham, 220 S. Cherry St., Richmond, Va., rec. by Samuel Weinstein and Chas. F. Walker.

No. 95. J. O'Keeffe Perry, Tazewell, Va., rec. by Samuel Weinstein and Chas. F. Walker.

No. 96. Richard Robinson Totty, Sycamore & Halifax Sts., Petersburg, Va., rec. by T. F. Knock and C. L. Guthrie.

Motion No. 13 (Election of Soldier and Sailor Members). You are requested to vote on the following applications for soldier and sailor membership:

S. S. No. 69. Theodore B. Angsbury, Plessis, N. Y., rec. by Frank H. Freericks and J. W. England.

S. S. No. 70. William Isaiah Smith, 431 Heberton Ave., Port Richmond, N. Y., rec. by L. W. Steiger and L. Brown.

S. S. No. 71. Arthur Herbert Bronish, Navy Yard Dispensary, Phila., Pa., rec. by G. J. Parker and Frank H. Freericks.

S. S. No. 72. Anthony Lapetina, 417 East 118th St., New York, N. Y., rec. by Frank H. Freericks and J. W. England.

S. S. No. 73. James Daniel Miller, 1403 N. 2nd St., Phila., Pa., rec. by Frank H. Freericks and J. W. England.

S. S. No. 74. Joseph Francis Buckley, 249 Decatur St., Brooklyn, N. Y., rec. by William T. Blair and W. D. Walters.

S. S. No. 75. Joseph J. Parascondolo, 91 Grand St., Hoboken, N. J., rec. by Frank H. Freericks and W. D. Walters.

S. S. No. 76. Eben Shafer Caldwell, Belle Vernon, Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 77. Paul Martin Rogers, 500 Fallowfield Ave., Charleroi, Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 78. Harry P. Crawford, 515 Fallowfield Ave., Charleroi, Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 79. Howard L. Leckey, Waynesburg (Brownsville), Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 80. Stanley J. Taylor, 123 W. Pike St., Canonsburg, Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 81. James W. Davidson, Fayette City, Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 82. John Joseph Esch, P. O. Box 730, South Brownsville, Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 83. James Wm. Acklin, 22 W. High St., Waynesburg, Greene Co., Pa., rec. by W. D. Walters and Frank H. Freericks.

S. S. No. 84. Homer C. Liffler, 91 Springfield Ave., Zanesville, Ohio, rec. by W. D. Walters and Frank H. Freericks.

(Continued in Next Issue.)

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, E. L. NEWCOMB, and the Editor-in-Chief of the JOURNAL, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

HORATIO C. WOOD, M.D.*

PRESIDENT OF THE U. S. PHARMACOPOEIAL CONVENTIONS FROM 1890 TO 1910.

Horatio C. Wood, M.D., of Philadelphia, was president of three Pharmacopoeial Conventions, and though not able to be present at the last meeting he sent a message from his sick-bed that was full of encouragement for those assembled. He realized that active service for him was no longer possible, but his impress marked the convention.

Doctor Wood was born in Philadelphia, January 13, 1841; here he lived his long and useful life, and died at his home, 4107 Chester Ave., January 3, 1920. He graduated from the Medical Department of the University of Pennsylvania in 1862, and served his Alma Mater from 1866 to 1906, a period of forty years, retiring on account of ill-health. The University of Pennsylvania, Yale and Lafayette conferred the LL.D. degree on him, and Swarthmore honored him with the degree of A.M. For ten years he was professor of botany, *i. e.*, to 1876, when he was elected professor of therapeutics, and emeritus professor of therapeutics in 1907. He was of the third generation of a family to be honored with the occupancy of the chair of therapeutics at the University of Pennsylvania, and it was his privilege to live to see his son, Horatio C. Wood, Jr., succeed to the chair.

As an author and editor the deceased was widely known. He edited five editions of the United States Dispensatory, 1883–1907, was editor of New Remedies, Philadelphia Medical Times and Therapeutic Gazette. Many societies, associations and institutions honored him; for his experimental researches in the physiological action of amyl nitrite he was awarded the Warren prize by the Massachusetts General Hospital; the American Philosophical Society awarded him a prize for his researches on American hemp; and so a list of investigations might be cited for which special honors were conferred.

In 1902 Doctor Wood was appointed to represent the United States Government to the Brussels Conference to formulate standards for *potent remedies.* Practically all of the recommendations of this Conference were adopted by the Committee of Revision U. S. P. IX.

* Further recognition will be given in February issue, Journal A.P.H.A.

SIR WILLIAM OSLER.

While the same reason does not obtain for presenting a sketch of Dr. William Osler as for the preceding, the standing of this leading scientist in medicine demands a brief record. He was a Canadian by birth, a graduate of McGill University, wherein he later taught pathology. In 1884 he came to the University of Pennsylvania as professor of clinical medicine, and thereafter, from 1889–1905, he was professor of principles and practice of medicine in Johns Hopkins University. In the latter year the call came from Oxford, which he accepted.

He passed the seventieth milestone in harness. His famous but generally misunderstood pleasantry about chloroforming men of sixty was in reality a reference to one of Anthony Trollope's novels. His literary works comprise 730 titles, chief among which are his Principles and Practice of Medicine and the Encyclopedic Modern Medicine, of which he was co-editor. He was the author of a number of delightful essays.

William Osler was born July 12, 1849, at Bond Head, Canada; died December 29, 1919, at his home in Nordham Gardens, Oxford. He was created a baronet of the United Kingdom by George V. in 1911, and was deservedly honored by many universities and scientific bodies.

THE GIVING OF MR. ROCKEFELLER.

It is needless to say that the extraordinary gifts of Mr. John D. Rockefeller have attracted the attention of every reader. Research in pharmacy is necessary for successful medical research and hence, in our opinion, there should be altruists who can impress those in charge of Mr. Rockefeller's magnificent gifts that pharmacy can be helped, that pharmaceutical research can be promoted, that schools of pharmacy are deserving of a share, however small, in these donations—the gift

to the Rockefeller Foundation is chiefly for the promotion of its work of medical research and the prevention of disease, wherein pharmacy must have a part, even though not favored by the generous provisions.

THE TOXICOLOGY OF METHYL ALCOHOL.

An end-product of the oxidation of methyl alcohol is formic acid. When methyl alcohol is taken into the body it remains as such for a considerable time; the conversion into formic acid is not rapid and the latter is quite resistant to oxidation in the body and reappears in the urine. A mere qualitative test will not suffice for determining whether wood alcohol has been taken into the organism, as formic acid is a normal constituent of the urine; however, when methyl alcohol is ingested, the output of formic acid in the urine promptly increases.

The summary of a report (*Journal A. M. A.*, January 3, 1920) of a case of wood alcohol poisoning is presented.

"1. In a case of severe acute poisoning with methyl alcohol, associated with a marked grade of acidosis, recovery followed the use of alkali therapy.

2. The acidosis was associated with an increase in the amount of titratable organic acids in the urine, and specifically with a marked increase in the excretion of lactic and of formic acids.

3. The acidosis, when present, furnishes an indication for the use of prompt therapeutic measures.

4. On the basis of the work quoted, it is submitted that gastric lavage should probably be done over a period of several days."

The fact that of a group of 130 men who drank a mixture of wood and grain alcohol all but 32 died or became blind is sufficient to confirm the dangerous poisonous effects of methyl alcohol. It also opens a question of importance as to the use of methyl alcohol for rendering alcoholic preparations unfit for beverage purposes, even though they are intended for external application.

HORSE SERUM *vs.* DIPHTHERIA ANTITOXIN.

A. Bingel, a German investigator, reported his conclusions, in 1918, that ordinary horse serum was just as effective as anti-diphtheritic serum. These conclusions were not accepted in Germany, nor elsewhere. E. Feer, working in the Zurich University Children's Clinic, compared sixty-five cases of diphtheria treated with antitoxin with fifty-seven treated with ordinary serum only in mild cases. (Current Comment, *Journal A. M. A.* Jan. 3, 1920). He found that the cases treated with ordinary serum, although mild and not ill for so long a time as the others, required five to seven days for the throat to become clean, as compared with three days for those treated by antitoxin. In six cases it was necessary to inject diphtheria antitoxin subsequently in order to obtain a satisfactory result. Moreover, he observed that the membrane again appeared in from three to nine days after the injection of ordinary serum. His results were so definitely in favor of antitoxin that the experiment was not continued. Feer was unable to understand Bingel's results and even suggests that they may have been due to his having used serum from horses which had previously supplied antitoxin. In the same way other German clinicians and experimenters, including Joannovics,[1] Friedberger[2] and Kolle,[3] confirmed the prophylactic and curative value of diphtheria antitoxin and demonstrated the inefficacy of ordinary horse serum in experimental diphtheria.

GREAT BRITAIN CONSIDERS NATIONALIZATION OF MEDICAL PROFESSION.

In commenting on the proposition to nationalize the medical profession of Great Britain, Dr. John Playfair, president of the Medical Guild, says "numbers of doctors would be quite willing to accept state medical service if such service were limited to the needy classes. Indeed, all along, service of such a nature has been approved and has formed one of the principles of the guild. The sweeping measure, however, which is proposed would not only be antagonistic to all feelings and aspirations of the doctors,

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[1] Joannovics, G., *Zur Behandlung der Diphtherie mit gewöhnlichen Pferdeserum, Wien. klin. Wchnschr.*, 32, 220–222, 1919.

[2] Friedberger, E., *Hat das normale Pferdeserum einen Einfluss auf die experimentelle Infektion des Meerschweinchens mit Diphtheriebazillen? Berl. klin. Wchnschr.*, 56, 151–158, 1919.

[3] Kolle, W. and Schlossberger, H., *Zur Frage der Heilwirkung des Diphtherieserums, Med. Klin.*, 15, 553–555, 1919.

but would, among other disadvantages, tend to reduce all professional activities and attainments to a dead-level, and would entirely abolish all feeling and sympathy between doctors and patients which members of the guild cherished and upheld, and would be a bad bargain for the nation as leading to inefficient and perfunctory medical attendance."

BRAZILIAN MEDICINAL PLANTS.

According to the *Paint, Oil & Drug Reporter*, the State of Bahia, Brazil, offers to the medical world an abundant and varied supply of plants, roots, barks, and gums, including many of recognized value and some regular articles of export, such as ipecacuanha root, aroba powder, jaborandi leaves, and Jatoba gum. Most of the plants exist in practically inexhaustible quantities; but orders must be placed in advance with local exporters, for there is no regular trade even in those now figuring among the State's exports. The supply depends entirely upon the demand. There follows a list of the most important medicinal plants found at convenient distances from the city of Bahia:

Angelica (*Gentiana rubra*).—Aromatic antiseptic, and antispasmodic; a powerful remedy against intermittent fevers.

Arco leaves.—A substitute for the coca leaves of Peru; a stimulating and powerful tonic, yielding cocaine.

Araroba or Goa powder.—This is a powder taken from the heart wood of a tree known locally as "amargoso do matto" (*Vouacapoua araroba*), which contains a substance known as chrysarobin, used in the treatment of skin diseases.

Barbatimao bark.—The inner bark contains phosphate of lime, tannin, and an alkaloid similar to quinine; it is a sedative, and reduced to powder makes an excellent dentifrice.

Cajuero (*Anacardium occidentale*).—The bark is astringent and is an efficacious remedy against diabetes.

Caroba leaves.—Antisyphilitic and antibubonic; well known in Brazil as a powerful blood cleanser, used externally and internally. It is a vegetable mercury and is said to be superior to sarsaparilla and other blood purifiers.

Cambara leaves.—A strong sedative and expectorant, for bronchitis, coughs, and pulmonary ailments.

Cameleao da costa.—Remedy for stomach trouble.

Cestrum leaves.—A strong narcotic, said to be poisonous, also used in baths against hemorrhoids, a powerful insecticide. The damp leaves are applied to wounds, first inflaming them, but afterwards cleaning and healing them.

Congonha.—A stimulant, diuretic as a tea.

Gervao.—One of the best disobstruents known, aids digestion and eases laborious births.

Imbauba.—Remedy against coughs, bronchitis, and asthma.

Imburana.—Inner bark contains coumarin; it is aromatic, an expectorant and a stimulant.

Ipecacuanha.—This is a shrub growing in the shade of the forest, the root of which is dried and powdered for use in medicine. It is valued as an expectorant, diaphoretic and emetic. It is not cultivated, but care is taken in digging up the plants to leave sufficient roots in the soil for another crop.

Jaborandi leaves.—Aphrodisiac, sudorific, and stimulating. From these leaves is extracted pilocarpine, which is used in tonic preparations for the hair.

Jurubeba (*Solanum paniculatum*).—Remedy for congestion and maladies of the liver.

Loco leaf.—A vegetable caustic.

Carnauba wax.—A tasteless, aseptic wax extracted from the leaf of a palm tree known locally as the "carnaubeira" and employed in the preparation of ointments, pomades, and pills.

Mamoma.—This is Portuguese for the castor plant, which was introduced into Brazil from India and China by the earlier colonists, but spread so quickly as to have the appearance to-day of a forest plant. Both the seed and oil are exported from Bahia in increasing quantities each year.

Manaca root.—Antisyphilitic vegetable mercury.

Jatoba gum.—Jatoba is a name applied to several species of trees found in the valley of the River San Francisco, which traverses the northern and western parts of the State of Bahia. The gum which is extracted from this tree is employed in the composition of syrups for pulmonary affections. It is variously known locally as jatoba, jatahy, and jutahy.

Jatoba bark.—The bark of the above-mentioned tree is also of value in the preparation of medicines and is employed as an astringent and carminative.

Mango tree (*Mangifera indica*).—The leaves are antiasthmatic.

Mentrasto.—A plant, stimulating against colics and used in fevers, also in baths to cure weakness.

Milhomens (*Aristolochia cymbifers*).—Used against paralysis, dropsy, and stomach trouble.

Mulungu (*Erythrina mulungu*).—The inner bark is a powerful sedative, narcotic, and antispasmodic, and is a substitute for belladonna; it also exercises a special action on the liver; in doses of 5 centigrams it will induce sleep.

Pareira brava root (*Cissampellos pareira*).—A powerful tonic, remedy for stomach trouble, bladder trouble, beri-beri, brain fever, and meningitis.

Pao ferro.—A bark used against diabetes; the seeds furnish a strong tonic and diuretic.

Purga de campo.—Remedy for fevers, pleurisy, tumors, and cancerous wounds.

Pindahiba.—Remedy for stomach trouble and for intestinal flatulence.

Quina-quina.—A bark used against fevers.

Quitoco.—Carminative, antihysteric, and digestive, used in baths for muscular pains in the body.

Samambaia.—Used for rheumatism.

Velame de campo.—Blood cleanser, antisyphilitic and antirheumatic, for skin diseases and swelling of the glands.

EDITOR'S NOTE.—The statements relative to medicinal properties, application, etc., are those of the circular of information.

Prof. Charles F. Chandler has been awarded the Perkins Medal by the American Section of the Society of Chemical Industry. One of the specific reasons for awarding the medal to Prof. Chandler is the important work he has done in the standardization of kerosene. It is largely through his efforts that this important product has become of commercial importance. He has also accomplished much in training men for the industry, and while the Perkins Medal is never given for that alone, his work in this connection is of such merit that the committee has seen fit to call special attention to it.

The medal was presented at a meeting of the Society of Chemical Industry at the Chemists' Club on the evening of January 16. Prof. M. T. Bogert, formerly a student of Prof. Chandler's and now a co-worker of his at Columbia, delivered the presentation speech, and talks were made by Dr. Wm. H. Nichols, president of the General Chemical Company, and Prof. M. C. Whittaker, of Columbia. Professor Chandler has been a member of the American Pharmaceutical Association since 1867.

Dr. W. A. Pearson has been elected Presiding Officer of the Philadelphia Section, American Chemical Society. Doctor Pearson has been a member of the American Pharmaceutical Association since 1908, and is a frequent contributor to the JOURNAL and the Scientific Section of the Association. He is professor of chemistry in and dean of the Hahnemann Medical College, Philadelphia.

Dr. Jokichi Takamine, member of the American Pharmaceutical Association, has organized a company to manufacture nitrogen from the air. American and Japanese capitalists are said to be interested, including Mitsui, Mitsubishi and Sumitomo. The undertaking will involve capital of yen 20,000,000. American manufacturers of heavy chemicals are invited to send exhibits to the Chemical Industrial Exhibition to be held at Tokyo, Japan, in March 1921. Dr. Jokichi Takamine is trying to interest leading American companies in the enterprise.

Oswald Chapman, member of the General Membership Committee, A. Ph. A., from Panama, has been reappointed member of the Panama Board of Pharmacy and elected chairman. He writes that they have a new pharmacy bill in preparation, which they propose to have adopted by the next National Assembly.

Howard S. Browne, former dean of the School of Pharmacy, University of Oklahoma, resigned last fall and entered the practice of medicine; Prof. D. B. R. Johnson has been elected as his successor. W. R. Jarrett, president of the National Association of Boards of Pharmacy, has been appointed a lecturer in the School of Pharmacy.

Ex-President John G. Godding met with an accident December 2, when he was struck by an automobile and his right shoulder dislocated. Mr. Godding reports that he is again able to be at work.

Henry J. Meyer, son of the late C. F. G. Meyer, founder of Meyer Bros. Drug Co., St. Louis, died at Johannesburg, South Africa, where he had large mining interests.

J. L. Hopkins, of J. L. Hopkins & Co., was tendered a surprise luncheon on January 3; the occasion was the thirtieth anniversary of the firm. The celebration took place at the New York Drug and Chemical Club.

Edward Mallinckrodt, Jr., of the Mallinckrodt Chemical Co., is back in St. Louis from a big game hunt in British Columbia. He left St. Louis late in the summer with a party of friends for a vacation in that part of the country and hunted in the famous Cassiar district.

OBITUARY.

OWEN HILARY TANSEY.

Owen Hilary Tansey, member of the American Pharmaceutical Association and druggist of Montreal, Canada, died October 25, 1919. Mr. Tansey had been in ill-health for a year or more preceding his demise. He was a prominent figure in the profession and one of the board of examiners in pharmacy for the past seven years. He was a member of the Montreal Board of Trade and the Canadian Council Knights of Columbus. The deceased was born January 14, 1878.

CHARLES WILLIAM JACOB.

Charles W. Jacob, member of the American Pharmaceutical Association since 1914, died at his home, Forest Park, a suburb of Chicago, on December 6, 1919. He had been ailing for the past two years. Mr. Jacob was born in Germany in 1849 and came to Chicago in 1872. He clerked for such of the old time druggists as C. W. Grassly, Plaut and Thiele. He was graduated from the Chicago College of Pharmacy in 1875 and engaged in the drug business at Ashland and Belmont Avenues, Chicago, being one of the first retail druggists in that section of the City. In 1897 he moved to Forest Park where he was engaged in the drug business until his death. His business will be carried on by his son, Herman Jacob. W. B. D.

WILLIAM HERBERT PIERCE.

William Herbert Pierce, for thirty years a pharmacist, conducting a business on Shawmut Ave., Boston, died November 23, 1919. He graduated from the Massachusetts College of Pharmacy in the class of 1879 and joined the American Pharmaceutical Association the same year. He was first vice-president of the Boston Association Retail Druggists, a man of quiet and unassuming manner, of strict integrity and greatly respected by the profession. J. G. G.

C. M. McKELLIPS.

Prof. Clarence M. McKellips, one of the best known pharmacy educators in the Northwest, died December 14 at his home in Portland, from cancer, after a protracted illness. He had been dean of North Pacific College of Pharmacy, Portland since 1913, when he came to Portland. Previously he had been for several years the head of the department of pharmacy of Oregon Agricultural College. He was born 53 years ago in Connersville, Ind., and received his diploma in Pharmacy from Purdue University. Professor McKellips' personality endeared him to those who knew him and he was a helpful and inspiring instructor. His widow survives him; they had no children. He joined the American Pharmaceutical Association in 1909.

PROFESSOR GOOD MEMORIAL MEETING.

A memorial meeting for the late Prof. James M. Good, an ex-president of the American Pharmaceutical Association, was held at the St. Louis College of Pharmacy November 19. George R. Merrell, president of the college, opened the meeting and read resolutions on the death of Professor Good which had been adopted by the board of trustees. Then followed Prof. Francis Hemm, speaking of Professor Good as a teacher. The next was F. H. Swift, president of the St. Louis R. D. A., who discussed Mr. Good as a retail druggist. Solomon Boehm represented the Cinchona Club. William K. Ilhardt, a former clerk for Professor Good, spoke for the St. Louis branch of the American Pharmaceutical Association. Dr. W. D. Aufderheide, who also learned the business in the Good Pharmacy, spoke for the Alumni Association of the college. Among other speakers were Dr. H. M. Whelpley, dean of the school, and Dr. Charles E. Caspari, professor of chemistry.

The auditorium of the school was well filled and the entire program evidenced earnest and appreciative sentiment.

SOCIETIES AND COLLEGES.

THIS YEAR.

What kind of a year will 1920 be? *Largely*, whatever we make it; in that degree we are the architects of our own fortunes, of our own years, our own life tenures, also of our Association. We can make the Association stronger and better by putting more of ourselves into it and with a realization that there is none better. Not satisfied with the present, but aspiring to a morale which signifies belief in one another. The Association is deserving of our best endeavor for its upbuilding, and of our harmonious coöperation to strengthen it.

NATIONAL COMMITTEE ON THE PHARMACEUTICAL SYLLABUS.

BULLETIN XXIV.

Chicago, Ill., Aug. 11, 1919.

To the members of the National Committee on the Pharmaceutical Syllabus:

The following is the financial statement of the Committee for the year Aug. 6, 1918 to Aug. 11, 1919.

RECEIPTS.

1918.		
Aug. 6	Cash on hand	72.25
Sept. 20	American Pharmaceutical Association	25.00
Sept. 23	American Conference of Pharmaceutical Faculties	25.00
Oct. 20	National Association Boards of Pharmacy	25.00
	Sale of four copies of the Syllabus	5.28
		152.53

DISBURSEMENTS.

1919.		
Mar. 11	T. J. Bradley, stamps, stationery, etc	22.00
May 29	Postage stamps	3.00
Aug. 7	1 quire stencils	3.00
Aug. 11	Cash on hand	124.53
		152.53

I now hold about 106 copies of the Syllabus.

Respectfully,

CLYDE M. SNOW,
Secretary-Treasurer.

Examined and found correct August 28, 1919.

G. C. DIEKMAN,
Auditing Committee.

BULLETIN XXV.

Chicago, Ill., Sept. 4, 1919.

Minutes of the meeting of the Pharmaceutical Syllabus Committee, held at the Hotel Pennsylvania, New York City, August 28, 1919, Chairman T. J. Bradley presiding.

Present: Messrs. W. C. Anderson, T. J. Bradley, G. C. Diekman, E. G. Eberle, G. M. Beringer, W. G. Gregory, J. A. Koch, C. B. Lowe, E. A. Ruddiman, H. H. Rusby, C. H. Skinner, C. M. Snow.

The Chairman presented a report in which he discussed the method of procedure for issuing the third edition of the Syllabus, and including the following recommendations:

1. That the size of the page be changed from the present 12 mo. back to 8 vo.

2. That the introduction and three principal sections, as revised up to the present time, be set up in galley form and that proofs be distributed to the Committee for further revision.

3. That the edition consist of 1200 copies.

4. That the Chairman be authorized to secure bids for making the Syllabus, the Committee to vote on the question before the contract is awarded.

Moved by G. C. Diekman, seconded by H. H. Rusby, that the size of the new edition of the Syllabus be 8 vo. Carried.

Moved by H. H. Rusby, seconded by W. C. Anderson, that the revised or new sections of the Syllabus be set up in galley form and that proofs be submitted to the Committee for final revision. Carried.

Moved by H. H. Rusby, seconded by E. A. Ruddiman, that 1200 copies of the new edition of the Syllabus be issued. Carried.

Moved by G. C. Diekman, seconded by J. A. Koch, that the Chairman be authorized to secure bids for printing and making the new edition of the Syllabus, including the necessary extra proofs and corrections. Carried.

The advisability of a special meeting of the Committee to finally pass upon and adopt the Syllabus was discussed.

Moved by H. H. Rusby, seconded by W. C. Anderson, that the Chairman shall call such a meeting, if it is deemed necessary by the Executive Committee. Carried.

After discussion, it was moved by W. G. Gregory, seconded by G. C. Diekman, that in the third year course, 75 hours be allotted

to Advanced Dispensing and 25 hours to Pharmaceutical Jurisprudence, these being the elective subjects in the department of pharmacy. Carried.

The inclusion of a glossary in the new Syllabus as adopted at the 1918 meeting of the Committee was discussed.

Moved by W. C. Anderson, seconded by G. C. Diekman, that the Committee reconsider the motion to include a glossary in the Syllabus. Carried.

G. M. Beringer requested that the Committee now vote on the question: Shall a separate glossary be included in the new Syllabus. A poll of the members present gave the following result: Yes, 6; No. 4. Carried in affirmative.

Moved by G. M. Beringer, seconded by G. C. Diekman, that the glossary include all terms used in pharmacy. Before a vote was taken a substitute motion was offered by J. A. Koch.

Moved by J. A. Koch, seconded by W. C. Anderson, that the terms defined be only general ones used in the Syllabus. The substitute motion was carried.

Moved by H. H. Rusby, seconded by W. G. Gregory, that the Secretary be instructed to submit a list of terms to be defined to the members of the Committee and request a vote on the retention or elimination of the terms so submitted. Carried.

The report of the Secretary-Treasurer was presented.

Moved by H. H. Rusby, seconded by J. A. Koch, that the report be received and ordered audited. Carried.

The Chairman appointed G. C. Diekman to audit the report. (This report was distributed as Bulletin XXIV.)

Moved by J. A. Koch, seconded by G. C. Diekman, that the Chairman be authorized to dispose of the electro plates of the former Syllabus. Carried.

Moved by W. C. Anderson, seconded by W. G. Gregory, that the Committee adjourn subject to the call of the Chairman. Carried.

CLYDE M. SNOW,
Secretary-Treasurer.

COST OF WHOLESALE DRUG TRADE DISTRIBUTION COMPARED WITH 1914.

G. Barrett Moxley, chairman of the special committee appointed by the National Wholesale Druggists' Association to investigate the cost of distribution, made a report to the convention of the association at New Orleans. Other members of the committee are F. E. Bogart, W. A. Hoover, C. S. Martin, J. W. Morrison. The report says in part:

Our questionnaire sought to present the controlling figures applying at the beginning and end of the six-year period, and hence our questions were asked on 1914 as a base for comparison with 1919. For instance, in the matter of wages, we have compiled for the various classes of help the average paid in 1914, the average paid in 1919, and against that we have established the percentage of increase 1919 over 1914.

	Average percent increase 1919 over 1914
1. Percent of increase in weekly wages paid to foremen, order and stock clerks	47.7
Percent of increase in weekly wages paid to packers	47.0
Percent of increase in weekly wages paid to draymen	59.9
Percent of increase in weekly wages paid to bill clerks and typists	43.5
Percent of increase in weekly wages paid to stenographers	33.6
Percent of increase in weekly wages paid to price-clerks	43.0
Average advance for above six classes of operating force independent of shorter hours	45.3
2. Percent of advance in salaries of executives, including buyers, sales managers, etc	34.3
3. Percent of advance in price paid for finished new drug boxes	99.1
4. Percent of advance in price paid for excelsior per ton	79.2
5. Percent of advance in weekly drayage cost per dray, including driver	57.8
6. Percent of advance in monthly cost of city delivery per vehicle (including wages of drivers and chauffeurs, maintenance of vehicles, horses, board, etc.)	58.6
TRAVELING SALESMEN.	
7. Percent of advance in monthly traveling expense of salesmen. (This includes every selling expense of salesmen except salary)	37.9
8. Percent of advance in monthly salary paid salesmen	45.4

Owing to variation in methods of

	Average percent increase 1919 over 1914
compensation existing, this percent is subject to some fluctuations.	
9. Percent of cost in selling expense (total of above two items including bonuses, etc.) to sales credited to salesmen—1914, 4.66; 1919, 4.50—decrease of.....16/100 of	1.0
Note that estimates formerly submitted credit 70 percent of total volume of sales to salesmen, so our selling expense through salesmen should figure about 3.15 percent on basis of total sales.	
10. Percent of increase in merchandise investment in 1919 as compared with 1914, 73.4 percent.	
11. Percent of total expense of operation to sales for 1914, 12.5 percent.	
12. Estimates on percentage of sales in proprietaries, patented or trade marked specialties on which the manufacturer established the jobber's commission, 67.2 percent.	
14. The estimate of the average advance in current prices applying to sales to-day over 1914, 35.19 per cent.	

Note that Federal Taxes, though a prime fixed charge against our business, payable in cash, are not accounted for.

These amazing advances would have been considered insurmountable in pre-war days, nor would even the most intense pessimist have predicted that they would exist twelve months after the signing of the Armistice, when we were all optimistic enough to hope that living conditions would rapidly improve and show a tendency to decline.

An immense volume in sales has been produced for some members by soda fountains, talking machines and sundries. The buying power of the public and the avidity with which they take sundry items of the luxury or semi-luxury class, after the several years of self-denial, is almost amazing.

Prices are our second prime assistance, and even though the subject will likely be covered by other committees we think it well to refer for a moment to the splendid history of prices during the war, produced by our War Industries Board and the Statistical Department of the Bureau of Labor. Babson's Bureau also has furnished a number of graphic charts showing the history of prices on some fifty lines of business during the war. Bradstreet's Index for all Commodities, covering about 1,450 items, show 103 percent increase in the last available report, and a few of the lines surveyed by the above-mentioned authorities, of interest to us, and the percentage of advance applying thereon, are as follows:

	Percent
Rentals	28
Paper	98
Paints and varnishes	126
Clothes, clothing and dry goods	154
Fuel and light	81
Hardware	114
Groceries	83
Cigars, in addition to reduction in weight and size	32
Cigarettes and tobaccos	75
Chemicals and drugs	63
Heavy chemicals	164
Essential oils	20
Drugs and pharmaceuticals (27 items)	163
Standard proprietary remedies	17

Chairman Huisking's report and chart of 116 crude drugs and chemical items show an advance over August 1914, of approximately 200 percent.

U. S. GOVERNMENT LOSING GOOD CHEMISTS.

Dr. Carl L. Alsberg, Chief of the Bureau of Chemistry, U. S. Department of Agriculture, spoke before the Chicago Section of the American Chemical Society recently on the precarious position of the various scientific bureaus of the Government. This scientific work has always been of the highest standard, and there has been a larger volume of scientific work done by this Government than by any other, but there has been a very rapid and critical deterioration in the past few years. There has been no change in the salary scale for twenty years, although recently a bonus of $240 a year has been granted to all appointees who receive a salary of less than $2,500 annually. The consequence of this has been that in the past year there has been a turnover of personnel amounting to 45 percent. One laboratory staff of twelve has lost eighteen men during the past two years, including its director.

Salary increases of from 50 to 500 percent are needed to prevent the absorption of the Government scientific personnel by the industries. Not only is this not forthcoming,

but Congress is even threatening to make conditions worse.—*Drug & Chemical Markets.*

THE COLLEGES.

It will be admitted that our teachers in pharmacy do creditable work, they shape the thought in pharmacy, direct the art and develop the methods of conducting the drug business. To some extent they have given up greater opportunities for acquiring wealth and look for their reward, in part, in the joy of service and in training the coming pharmacists. They have had to get along on low and fixed incomes, hence, they with others engaged in teaching have suffered more than any other class from the high cost of living. While we are ready to congratulate institutions that have benefited by the recent large gifts we express the hope that in some way pharmacy schools and teachers may share.

RESOLUTIONS UNANIMOUSLY ADOPTED AT A MEETING OF THE FACULTY OF COLUMBIA UNIVERSITY, COLLEGE OF PHARMACY, HELD ON TUESDAY, DECEMBER 30, 1919.

WHEREAS, The basic principle of professional life and activity is the obligation of its subjects to be loyal to its unselfish interests and purposes and to regard the satisfaction of self-interest chiefly as a means for the accomplishment of these purposes, and

WHEREAS, The American Federation of Labor is not organized nor conducted in accordance with that principle, therefore, it is

Resolved, By the Faculty of the School of Pharmacy of Columbia University in the City of New York, that it is not fitting nor proper that we should affiliate with the American Federation of Labor, nor with any organization that is so affiliated, and

Resolved, That we favor the organization of a genuinely professional association of teachers and other representatives of the professions, having for its object the establishment of the best possible conditions for accomplishing professional work, among which conditions is the proper material support of the members of such professions.

H. H. RUSBY, *Dean.*

THE BRONZE MEDALLION IN HONOR OF DR. CRAWFORD W. LONG.

Miss Adelaide Rudolph of the Library, New York College of Pharmacy, communicates the following:

The note at the end of Charles M. Ford's article in the December number of the JOURNAL of the A. Ph. A. about the bronze medallion, placed to the honor of Dr. Crawford W. Long by the University of Pennsylvania in its medical school, causes a thrill of satisfaction in the library of the New York College of Pharmacy, where a photograph of that fine piece of art hangs framed upon its walls. The more so, because it was presented to the College by the designer himself, the distinguished sculptor-physician Dr. R. Tait McKenzie.

Dr. McKenzie became interested in the collecting of pharmaceutical medals which his friend, Dr. H. R. Storer, of Newport, R. I., has been fostering for the N. Y. C. of P. library, and wrote to him in his note of presentation: ....."If I can help the College of Pharmacy to complete their collection, I shall be glad to do it."

THE PHARMACIST AND THE LAW.

AUSTRIA'S CONTROL OF PHARMACY.

The Austrian Government is organizing a German-Austrian Medicinal Drug Department, utilizing in part the war materials of the former Army Drug Management and the laboratories of the Vienna Government Hospital. Certificates of indebtedness will be issued by the Government. The Drug Department will supply the hospitals and the sick benefit associations. It will buy the medicines from manufacturers and also have general supervision of their plants.

The Drug Department will also fix prices, both for the producers and to the public in the pharmacies. In fact, the pharmacies will really be only sales agencies for drugs and medicines.

SAN ANTONIO, TEXAS, TO HAVE A LIQUOR DISPENSARY.

We are quoting from an editorial in the *Southern Pharmaceutical Journal* in the following:

The Retail Druggists' Association of the City of San Antonio are to have a central dispensary for dispensing liquors on the

prescriptions of physicians. A corporation is to be organized and financed by the druggists of the city association to take over from *the drug stores* the liquor prescriptions that come to them. This eliminates liquor prescriptions from drug stores. It is said to be the purpose of the druggists to place the dispensary in charge of a reliable person under adequate bond and have all liquor prescriptions filled there.

Col. F. A. Chapa, who has been in the drug business in San Antonio for many years, has said that if it became necessary for him to handle whisky in his store he would close up shop and go out of business, as the temptation would be too great for clerks, delivery boys and porters. He said that if whisky was obtainable in drug stores, sooner or later every druggist in San Antonio would become involved in violations of the law. Druggists who are figuring on handling whisky in their stores should take into consideration the fact that it is nearly impossible to dispense liquor without violating the law. Prohibition Commissioner Kramer and Deputy Commissioner Gaylord seem to think favorably of the plan, and also Internal Revenue Agent T. J. Taylor of the San Antonio division, in whose opinion the dispensary will lessen the troubles of the Government, those of the druggists and make for better administration of the prohibition law.

WARTIME PROHIBITION ACT UPHELD BY THE U. S. SUPREME COURT.

In a five to four opinion rendered by Associate Justice Brandeis, the U. S. Supreme Court on January 5, 1920, sustained the constitutionality of provisions in the Volstead prohibition enforcement act prohibiting the manufacture and sale of beverages containing one-half of 1 percent or more of alcohol. Associate Justices Day, Van Levanter, McReynolds and Clarke dissented. Validity of the federal prohibition constitutional amendment and of portions of the Volstead act affecting its enforcement was not involved in the proceedings.

Wayne B. Wheeler, General Counsel for Anti-Saloon League, stated that the only question still open was whether the eighteenth amendment was of a nature that could be considered as a federal amendment and whether it was properly adopted.

INTERNAL REVENUE BUREAU WOULD RESTRICT SALE OF WOOD ALCOHOL.

Methyl alcohol is a poison and there is nothing that can be added thereto which will modify this quality sufficiently to make it safe for beverage purposes, even in very small quantity. The public has practically become aware of this and is shown by the very few cases of poisoning during the last few weeks. A would-be suicide is deterred from its use, as it is somewhat doubtful whether death or blindness will follow. Just as soon as this information becomes general all sales of wood alcohol will be only for legitimate purposes. There should be a very rigid enforcement of means to convey the information that wood alcohol is a most dangerous poison, and thereby the public safe-guarded.

POSSIBLE EMBARGO ON WOOD ALCOHOL IN PENNSYLVANIA.

Edward Martin, Commissioner of Health of Pennsylvania, has announced that an embargo will be placed on all non-official preparations containing alcohol unless the State Department is furnished by January 8, 1920, with an affidavit that they do not contain wood alcohol. Action was taken following reports of several deaths in Philadelphia attributed to wood alcohol. The coroner is now investigating and he threatens to bring charges of murder against those who used wood alcohol in compounding drinks and medicines.

PAREGORIC SALES PROSCRIBED BY PHILADELPHIA RETAIL DRUGGISTS.

At a recent meeting of the Philadelphia Association of Retail Druggists the following resolutions were adopted:

WHEREAS, Paregoric, being a habit-forming drug, can be and is used by drug addicts, and it being difficult when sold to determine whether or not it will be put to its proper use, and

WHEREAS, The members of the Philadelphia Association of Retail Druggists, who are interested in public welfare, are not willing to supply those addicted to the drug habit, be it therefore

Resolved, That the members of the Philadelphia Association of Retail Druggists do not sell nor supply paregoric excepting upon a physician's prescription.

NEW PUBLICATIONS

Chemical Analysis: Text-book of Quantitative Chemical Analysis. A. C. Cummings and S. A. Kay. 3rd Ed. 416 pp. Gurney and Jackson, London.

Chemistry: Exercises in Chemistry. W. A. Noyes and B. S. Hopkins. 12mo. 131 pp. Price, $0.80. Henry Holt & Co., New York.
Chemistry: Profession of Chemistry. R. B. Pilcher. 8vo. 213 pp. Price, 6s. 6d. Constable & Co., Ltd., London.

Chiropractic Chemistry: Text-book on Chiropractic Chemistry. S. J. Burich. 8vo. 430 pp. Price, $5.00. S. J. Burich, Davenport, Ia.

Dietetics. Julius Friendenwald, M.D., and John Ruhräh, M.D., University of Maryland. Fourth Edition. 12mo. of 467 pages. Price, $1.75. W. B. Saunders Company, Philadelphia.

Manufacture of Chemicals by Electrolysis. A. J. Hale. 8vo. 80 pp. Price, 6s. Constable & Co., Ltd., London.

Perfumes and Cosmetics: Their Preparation and Manufacture. G. W. Askinson. Revised Ed. 334 pp. Price, 25s. Hodder & Stoughton, London.

Receipts: Techno-Chemical Receipt Book, Containing Several Thousand Receipts and Processes. W. T. Brandt and W. H. Wahl. New Enlarged Edition. 12mo. 516 pp. Price, $2.50. H. C. Baird & Co., New York.

Rubber: Crude Rubber and Compounding Ingredients. H. C. Pearson. 3rd Ed. 8vo. 422 pp. Price, $10.00. The India Rubber World, New York.

Scientific Discovery: Wonders of Scientific Discovery. C. R. Gibson. 8vo. 158 pp. Price, 3s. Seeley, Service & Co., Ltd., London.

Stereo-Chemistry. A. W. Stewart. 2nd Ed. 277 pp. Price, 12s. 6d. Longmans, Green & Co., London.

Teaching the Sick. George Edward Barton, A. I. A., Consolation House, New York. 12mo. of 163 pages, illustrated. W. B. Saunders Company, Philadelphia.

"A fellow, who being too lazy, too stupid, or too perverse to make good, seeks to get his revenge on society by attempting to destroy its government, is like a 'bug' I once knew who stood in the middle of a stream, and, beating a tin pan, tried to shoo the trout up stream, so that some good fellows down stream couldn't catch any."—*Jerry McQuade.*

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